

AMERICAN **> KEEP SAFE WITH A STRONG PERIMETER** SURVIVAL GUIDE

**HEADING
FOR THE HILLS
MAY GET
YOU KILLED**

**HYDROGEN
PEROXIDE:
SECRET
CURE-ALL**

**A TAMPON
COULD SAVE
YOUR LIFE**

Become the **Gray Man**

**DISAPPEAR
IN PLAIN
SIGHT**

**CREATE
YOUR
OWN
POWER
WITH
WIND**

GEAR REVIEWS

- > ESEE's Best Survival Knife**
- > Classic Hero: The Woodman's Pal**
- > Hazard4's Battle Axe Diversion Case**
- > Hot Box: Quick and Easy Fire Starter**

SPECIAL SECTIONS

Rainwater Collection System
Escape Handcuffs Quickly
How to Land a Small Plane
Beat a Polygraph

IMPOSSIBLE
**THE ZOMBIE
APOCALYPSE**

VOLUME 4, ISSUE 1 • JANUARY 2015 • U.S. \$8.99
DISPLAY UNTIL: 1/13/2015



Engaged Media By Beckett

TAHO-01



WPAX-02



TEX-4



FMS-05



HOG-4.5



TEX-XL



SKIN-01



TBT-010



WPH-07



HERO-01



BAJA-03



TBT01-TAN



STREK-3.5



BKUK-01



VERSATILITY WITH LOTS OF OPTIONS

MADE IN THE
ROCKY
MOUNTAINS
USA

Dealer inquiries
welcome



*Knives are not to scale

WWW.TOPSKNIVES.COM
www.facebook.com/TOPSKnivesofficial



SWOOD-3.5



LION-01



BROS-TAN



CRH-01



TOPS KNIVES

P.O. Box 2544

Idaho Falls, ID 83403

Phone: (208) 542-0113 FAX: (208) 552-2945



Give The Gift of Preparedness!

ARE YOU PREPARED?

See Our Ad on Inside Back Cover for More Discount Food & Gear

NITRO-PAK®



PREPAREDNESS CENTER

America's Foremost Preparedness Food & Gear Co.™



New!

FREE SHIPPING

SIGNATURE ELITE FOOD RESERVE™

"The Only Insurance Policy You Can Eat!"™ SM

- 2550 Calories Per day!
- No Cooking, Preparation or Simmering!
- Ready to Eat in 5-8 Minutes!
- Packed in SURE-VAULT Metal Cans!
- Ten Easy to Store Cases.

Item #
List \$1299.....**Sale \$1699**

Signature Elite Series™

25 DIFFERENT NO COOK MEALS !



BEST Brands! BEST Tasting! BEST Selection! BEST Price!
Does Your Food Storage Look & Taste This Good?

INTRODUCING OUR NEW MEGA-WEBSITE!

- Faster Navigation
- NEW 365 Day Warranty
- Download Checklists
- NEW Learning Center
- New 110% Low Price Guaranteed!

WWW.NITRO-PAK.COM

Signature Elite Series™



URBAN SURVIVAL PAK™ "LEVEL II"

- 72 Tactical Survival Items
 - Mil-Spec Shoulder Bag w/Covert Gun Holster
 - Pepper Gas, Gerber® Multi-Tool
 - Water Filter & Food. Only 7.5 lbs
- Item #5800
List \$324 **Sale \$279.00**



- 1-Month Entree Pack
- Breakfast, Lunch & Dinner
- 15 Varieties

Item #8010
List \$253
\$220



New!

REAL FREEZE-DRIED MEATS!

Essential to ANY Food Reserve!

- Ground Beef
 - Diced Beef, Ham, Chicken, and Turkey
 - Pork Chop Pieces
- Item #1852
List \$345.90....**Sale \$270**



New!

DELUXE SECURITY-PAK™

- Compact 7-Day Food Reserve for Two People
 - 42+ Meals
- Item #1880
List \$258
Sale \$232



Great Gift Idea!

TACTICAL SURGICAL KIT

- Stainless Steel Surgical Quality
 - Includes Two Sterile Sutures
 - Non-Suture Strips • 26 Pieces
- List \$65.99. **Sale \$55.99**



Save 24%!

YEAR SUPPLY VEGETABLE-PAK

- 390 Servings • 18 #10 Size Cans
- Corn, Peas, Green Beans (6 ea.)

Item #1848
List \$415
Sale \$349



MRE MEALS READY TO EAT

- 12 Different Meals
- 5 Year Shelf Life
- Nitro-Pak Exclusive

Item #830
List \$129
Sale \$98.50



SURVIVAL FOOD TABS

- 15 Days of food
- 180 Tablets
- No Cooking

Item #5700
List \$29.99
Sale \$24.95



72 HOUR MEAL KIT

- 3 Days of food
- Just add water
- No Cooking

Item #80694
List \$60.00
Sale \$51.99



ASTRONAUT FREEZE-DRIED ICE CREAM

- Neapolitan Ice Cream
- #300019
List \$3.99

Sale \$2.39



PROVEN BRANDS YOU KNOW & TRUST!



FREE SHIPPING!

On all orders over \$149
(*Lower 48 States)



2011, 2013, 2014 Gold Medal Winner

800.866.4876

NITRO-PAK.COM/ASG

Promo Code:
PREPARE

Prices are good through December 31, 2014 • Typographical, description, or photography errors are subject to correction. © 2014 Nitro-Pak

52

COVER

THE GRAY MAN

How to Disappear and
Hide in Plain Sight

By Ryan Lee Price

THE COVER:

Steve Windes escapes civilization by becoming the gray man, a survival persona applied to those that need to hide in plain sight, all the while trapped in a busy urban environment. The Battle Axe diversion case courtesy Hazard4; the M-65 tactical jacket courtesy Rothco; and the grey long sleeve shirt courtesy Insect Shield.

Photography:
HENRY Z. DEKUYPER
Design:
JESSE CAO



AMERICAN SURVIVAL GUIDE (ISSN 2331-8937) Volume 4, Number 1 is published 11 times a year by Engaged Media by Beckett, LLC, 22840 Savi Ranch Pkwy., Suite 200, Yorba Linda, CA 92887. **POSTMASTER:** send address changes to American Survival Guide c/o Engaged Media by Beckett, 4635 McEwen Road, Dallas, TX 75244. © 2015 by Beckett Media, LLC. All rights reserved. Reproduction of any material from this issue in whole or in part is strictly prohibited. GST #R55050365RT001 Canada Post: Publications Mail Agreement #40612608. Return undeliverable Canadian addresses to: PITNEY BOWES, INC. P.O. Box 25542 London, ON N6C 6B2.

CONTENTS

VOLUME 4, ISSUE 1 | JANUARY 2015

FEATURES

18 STORIES OF SURVIVAL: VICTOR HEISER

The Johnstown, Pennsylvania Flood Survivor Who Saved Millions
By Bryan Dumas

30 WHEN THE SUN ATTACKS

Defending Yourself Against Solar Flares and the Sun's Natural Phenomena
By Larry Schwartz

76 K9 SURVIVAL

The Grit and Determination of Search and Rescue Dogs
By Ryan Lee Price

86 SEVEN WATER FILTRATION SYSTEMS

Avoiding a Cocktail of Bacteria, Viruses, and Parasites
By Ryan Lee Price

98 KEEPING A MAN ON THE FENCE

Protecting Your Perimeter
By Mykel Hawke

URBAN

24 NO ZOMBIES

Five Reasons Why the Zombie Apocalypse Can't Happen
By Scott Fisher

42 RELOADING 101

Ammunition for The Times It Must Be Available
By James E. House

68 RIGHT UNDER YOUR NOSE

Hazard 4 Battle Axe Diversion Bag
By Ryan Lee Price

73 WIND POWER: CHEAP, GREEN, AND EFFECTIVE

From Ancient Windmills to High-Tech Wind Turbines
By Larry Schwartz

96 THE CURE-ALL

14 Surprising Uses for Hydrogen Peroxide
By Ryan Lee Price

104 HARVEST THE RAIN

Installing Fiskars' Salsa Rain Barrel and Diverter Pro
By Ryan Lee Price

BACKCOUNTRY

36 HEAD FOR THE HILLS?

Fleeing for the Hills Might Be the Last Thing You Should Do
By Carrie Visintainer

41 FOLIAGE'S FEAR

The Ubiquitous Woodman's Pal is Nearly 75-Years Old
By Ryan Lee Price

84 MAN'S BEST FRIEND

ESEE Knives ESEE-6
By Ryan Lee Price

108 PARABOLIC FLAME

Solo Scientific's Tinder Hot Box Solar Fire Starter
By Ryan Lee Price

113 THE TAMPON SURVIVAL TOOL

The Tactical Adventure Medical Preparedness Outdoors Necessity
By Creek Stewart

118 SHOCKING TRUTH

How to Stay Safe in a Lightning Storm
By Larry Schwartz

HOW-TO

34 WHEN THE BLOOD WON'T STOP

How to Properly Apply a Tourniquet
By Jeff Zurschmeide

64 PLANE CRAZY

How to Land a Small Plane
By Ryan Lee Price

70 SLUICING THE TRUTH

How to Pass a Lie-Detector Test
By Scott Fisher

110 SHACKLED

How to Escape from a Pair of Handcuffs
By Ryan Lee Price

GEAR GUIDES

46 AMMO RELOADING
EQUIPMENT

56 POCKET KNIVES

122 EMERGENCY RADIOS



46



56



122

COLUMNS

6 FIRST WORDS

10 NEW PRODUCTS

12 PREPPING WITH RALSTON

14 NEWS & NOTES

130 DEAD END



Ryan Lee Price
rprice@beckett.com

Some Don't Want To Be Found

WHEN WE THINK OF SURVIVAL, the images that are usually associated with risking life and limb to persevere and to return home is mostly that of the struggle of man alone against nature. He is stuck deep in the backcountry, far removed from the vestiges of civilization, and with a dire longing for normalcy. However, sometimes survival means not being found. Sometimes survival isn't a lone struggle of man against nature, but man against everyone in a larger-than-onself struggle. One such man was Hiroo Onoda, second lieutenant in the Imperial Japanese Army during World War II.

Onoda was trained as an intelligence officer after he enlisted in 1942 and was sent to Lubang Island in the Philippines the day after Christmas, 1944. He was given orders from Major Yoshimi Taniguchi to destroy the airfield and pier to hamper the eventual arrival of the Americans; however, his most important order was that, under no circumstances, was he to surrender or take his own life. Three months later, on February 28, 1945, the Americans took Lubang, and all but Onoda and three other Japanese soldiers were killed or had surrendered during the battle.

The four survivors—Akatsu, Shimada, Kozuka, and Onoda—took to the hills of Lubang and vowed to conduct guerrilla warfare against the Americans. When they first saw a leaflet that announced the surrender of Japan, it was October 1945, and they figured it was a trick. A couple of months later, more leaflets trickled down

from the sky; this time, they were orders from Tomoyuki Yamashita of the Fourteenth Area Army. They had been evading the Americans (and now the Philippines Army and local police) for over a year and couldn't believe that the war was lost. They ignored the new leaflet as a fake.

Akatsu surrendered to police in September 1950, and family letters and pictures were dropped from aircraft in 1952 pleading that they give themselves up. The remaining three concluded it was, again, a trick by the Allies. They continued their guerrilla warfare campaign, causing the death of more than 30 Filipino islanders and engaging in several shootouts with the police. Shimada was wounded in a gunfight and nursed back to health by Onoda in 1953, but was killed the following year by a search party. Kozuka was killed by police after a firefight in October 1972, but Onoda was good at disappearing. The only evidence that he continued to survive was that farmers' rice fields would be burned, just Onoda following orders by hampering the Allies.

On February 20, 1974, Norio Suzuki, an eccentric who told friends he would travel the world in search of, "Lieutenant Onoda, a panda, and the Abominable Snowman, in that order," met and befriended Onoda. Suzuki explained the war had been over for nearly 30 years, but Onoda still wouldn't surrender unless given orders by his superior officer.

Suzuki returned to Japan and found Major Yoshimi Taniguchi, who agreed to come to Lubang Island and relieve Onoda of his duty. On March 9, 1974, he laid down his still-functioning Arisaka Type 99 rifle and the dagger his mother gave him and returned to Japan a hero.

In 1944, Taniguchi's last words to Onoda before sending him to Lubang Island were: "Whatever happens, we'll come back for you." **ASB**

Ryan



EDITORIAL

Editor-in-Chief: Ryan Lee Price
Managing Editor: Kari Windes
Senior Creative Director: Eric Knagg
Art Director: Jesse Cao

CONTRIBUTORS

Tim Ralston, Larry Schwartz, Tori Tellem, Jeff Zurschmeide

ADVERTISING

Gabe Frimmel - Ad Sales Director
(714) 200-1930 - GFrimmel@Beckett.com
Casey Clifford - Senior Account Executive
(714) 312-6275
Mark Pack - Senior Account Executive
(714) 200-1939
Gennifer Merriday - Ad Traffic Coordinator

DIRECT MARKETING GROUP

John Bartulin (866) 866-5146 ext. 2746
Paul Caca (866) 866-5146 ext. 4961
Ryan Lauro (866) 866-5146 ext. 2756

OPERATIONS

Gus Alonzo: Newsstand Sales Manager
Celia Merriday: Newsstand Analyst
Mohit Patel: Newsstand and Production Analyst
Alberto Chavez: Senior Logistics & Facilities Manager
John Cabral: Creative Graphic Designer

EDITORIAL, PRODUCTION & SALES OFFICE

22840 Savi Ranch Parkway, #200
Yorba Linda, CA 92887
Ph: (800) 332-3330
Fax: (800) 249-7761
www.americansurvivalguidemag.com
www.facebook.com/americansurvivalguidemagazine
www.facebook.com/eembybeckett

AMERICAN SURVIVAL GUIDE (ISSN 2331-8937)

Volume 4, Number 1 is published 9 times a year - January, February, April/May, June, July, August, September, November, December, Engaged Media by Beckett, 22840 Savi Ranch Pkwy., Suite 200, Yorba Linda, CA 92887. **POSTMASTER:** send address changes to American Survival Guide c/o Engaged Media by Beckett, 4635 McEwen Road, Dallas, TX 75244. © 2015 by Beckett Media, LLC. All rights reserved. Reproduction of any material from this issue in whole or in part is strictly prohibited. GST #R55050365RT001 Canada Post: Publications Mail Agreement #40612608. Return undeliverable Canadian addresses to: PITNEY BOWES, INC. P.O. Box 25542 London, ON N6C 6B2.

CUSTOMER SERVICE

ENGAGED MEDIA BY BECKETT
4635 Mc Ewen Road, Dallas, TX 75244

SINGLE COPY SALES
(800) 764-6278
(239) 653-0225 Foreign Inquiries
subscriptions@beckett.com
customerservice@beckett.com

BACK ISSUES
www.engagedmediamags.com

BOOKS, MERCHANDISE, REPRINTS
(239) 280-2380

DEALER SALES
(239) 280-2380

NEW PRODUCTS OR TO CONTRIBUTE A STORY OR PHOTO
rprice@beckett.com

Engaged Media By Beckett

ENGAGED MEDIA BY BECKETT

Nick Singh: Executive Director
Vikas Malhotra: Vice President
Erin Masercola: Editorial Director

This magazine is purchased by the buyer with the understanding that information presented is from various sources from which there can be no warranty or responsibility by Engaged Media by Beckett as to the legality, completeness or technical accuracy.

DARKNESS

IS COMING

Fire, flood, hurricane, tornado, earthquake, terrorism, nuclear/biological/chemical, destruction, panic. These disasters present lethal challenges in daylight. They are compounded by darkness. Are you ready? TNVC is the only place to obtain all the necessary low light and no light gear to not only survive, but endure and prevail when disaster strikes. Don't be caught in the dark!

NIGHT VISION THERMAL LASERS LIGHTS HELMETS MOUNTS



www.TNVC.com

© Copyright 2014, TNVC, All Rights Reserved



Booth 6502



CALL TOLL FREE
800-441-8855

MAJOR
SURPLUS & SURVIVAL

THOUSANDS MORE
ITEMS ONLINE

YOUR SOURCE FOR SURVIVAL PRODUCTS



WHEN ALL HELL BREAKS LOOSE

by Cody Lundin

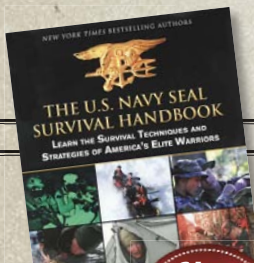
ITEM #12-0007

This isn't your father's boy scout manual or a FEMA handout. From the basics such as shelter, water, food survival kits, and first aid, to survival exotics such as building a makeshift toilet, catching rodents for food, and safely disposing of a corpse. When All Hell Breaks Loose is the first book to concisely and humorously outline a simple survival system using everyday household items to survive catastrophes from Los Angeles to Paris and everywhere in between. So ditch the fear-mongering and paranoia, lower the shotgun, and immerse yourself in the most common-sense, in-your-face book on preparedness yet!

THE US NAVY SEAL SURVIVAL HANDBOOK

ITEM #12-0023

Don Mann has assembled the best global survival manual there is today, and draws upon extensive operational experience as a Navy SEAL to hammer home the lessons rather than being another checklist of skills like so many survival books flooding the industry today. Don's wealth of field tested skills has finely honed the art of survival forgotten by the modern world. Mann has written a book that will provide you with practical no nonsense techniques. This book is an absolute must have for every outdoor enthusiast, adventurer or Armed Forces member. It is packed with a ton of useful information on wilderness survival techniques.



REG. \$19.95

Now
\$17.95

SNAKE BITE KIT (PACK OF 2)

ITEM #30-0020

A complete, compact kit for the treatment of snake bite using the constrictor/suction method. Kit includes detailed instructions, three pliable suction cups, easy to use with one hand lymph constrictor, scalpel, and antiseptic swab.



FOLDING STOVE

WITH 8 EXTRA LARGE FUEL TABS & MATCHES

ITEM #16-0029

All steel stove, folds compact. Opens to multiple cooking positions. Measures folded 5" L x 1" W x 3 1/2" H. Comes with clean burning, large, solid fuel tabs that you break off to smaller pieces for shorter cooking times and a book of matches.

REG. \$10.95

Now
\$7.95



U.S. STYLE

TRI-FOLD SHOVEL

ITEM #08-0192

The finest quality import tri-fold we have ever offered! It rivals the genuine U.S. Issue. You will not be disappointed. Measures 9-1/4" folded flat, 22-7/8" unfolded. Brand New.

REG. \$29.95

Now
\$23.95

STRIKE FORCE™

Fire Starter System

ITEM #14-0580

The patented Strike Force is an exceptional all-weather flint based fire starting system. The system offers you an all-in-one compact, durable package, with a special alloy flint bar and hardened steel striker. When you scrape the striker down the high performance flint material you generate a spark three times as hot as a standard match which will easily ignite any dry tinder material, or you can use WetFire tinder which burns at more than 1,300 degrees. You won't find a better non-toxic, odorless tinder that actually burns longer when wet. When conditions are at their worst you can count on Strike Force to make you a warming fire. It also is a safe and easy lighter for your backpacking stoves or barbecues. Available in Black or Orange.



REG. \$29.95

Now
\$24.95



REG. \$19.95

Now
\$9.95

2 PACK



Now
\$39.95

REG. \$48.95

SWEDISH FIREKNIFE

ITEM #03-0197

The Swedish FireKnife™ is a new product by Light My Fire® which incorporates both a Mora Knife and a Swedish FireSteel®, the ultimate way to light a fire in any weather. The 3.75" blade is constructed of Sandvik 12C27 Swedish cold-rolled special stainless steel (Rc 56-58). The handle, with a high friction rubber grip, is comfortable, and safe to use. Profile grinding makes the blade extremely sharp from the factory and is easy to resharpen without special tools. The back of the knife has been ground to work perfectly with the Swedish FireSteel® which is contained in the rear of the handle. The durable Swedish FireSteel® works equally well when wet and creates a 5,400°F Spark. Just twist and pull on the back of the handle to reveal the Swedish FireSteel® which measures .25" in diameter by 1.5" long. Overall measures 8 3/4" L x 2" W x 1" H.



VOODOO TACTICAL MULTI-TOOL

ITEM #03-0041

Easy grip multi-tool WITH #420 stainless steel tools that mount inside the anodized aluminum handles. Tools include: knife blade, Phillips screwdriver, serrated blade, bottle opener, 2-sided file with flat screwdriver tip, can opener, chisel and wood saw. Comes with a ballistic nylon belt pouch. Closed measures 4" L x 1 3/4" W x .75" H.

REG. \$19.95

Now
\$10.95

CALL TOLL FREE 1-800-441-8855

MAJOR
SURPLUS & SURVIVAL

ORDER ONLINE www.MajorSurplus.com

ORDER ONLINE
MajorSurplus.com

MAJOR
SURPLUS & SURVIVAL

**AMERICA'S
PREPAREDNESS
SUPPLIER**

FULL SERVICE PREPAREDNESS WAREHOUSE

FOR THE hardcore SURVIVALIST!

THE RENEGADE SURVIVAL KIT

ITEM #11-0020

The kit, made by a survivalist. Compact, lightweight and effective. We kept only what's necessary. Keep in your car, put one in your Bug Out bag or leave one at the office. Kit provides you with some of the most basic human needs, Food, Fire, Shelter and Rescue. Measures 6"L x 5"W x 2"H.

REG. \$62.95

**Now
\$39.95**

COMPLETE UNIVERSAL SURGICAL KIT

ITEM #10-7688

Complete U.S. Military field style.
All new components.

INCLUDES:

- 1 Surgical Kit (7"L x 5"W x 2½"H)
- 1 3½" Splinter Tweezers
- 1 Triple Antibiotic Ointment
- 1 6" Wound Probe with Eye
- 1 3½" Stitch Scissors
- 1 5½" Bandage Scissors
- 1 5" Straight Forceps
- 1 5" Curved Forceps
- 1 #3 Scalpel Handle
- 1 Scalpel Blade

- 1 Suture
- 2 Sani Wipes
- 1 Pupil Flashlight
- 2 Povidone Prep Pads
- 2 Alcohol Prep Pads

REG. \$43.95

**Now
\$34.95**



GENUINE
U.S. GOV'T
ISSUE

REG. \$80.95

**Now
\$59.95**

G.I. LENSATIC COMPASS

ITEM #02-1405

This is the current U.S. Issue with induction damped needle swing and magnifying lens in the sighting bracket for easy dial readings. The O. D. hinged aluminum case has a straight edge calibrated in centimeters. This compass has degree and millimeter scales and operates in -49°F to 158°F temperatures. Neck lanyard and O. D. nylon LC-1 compass/1st aid pouch with ALICE clip included. Phosphorescent markings (requires external light to become luminous)

NYLON CORD SURVIVAL BRACELET

With Whistle

ITEM #02-0157

Hand woven nylon cord which can be unwound in survival situations. Use for shelter building, splint lashing, spear attaching, animal snares, etc. Handy emergency whistle built into the side release buckle. One size. Measures 10" overall x 7/8"W x 1/4" thick.



REG. \$14.95

**Now
\$7.95**

INTERMEDIATE L.I.F.E. PACK

Lightweight • Individual • Field • Emergency

ITEM #10-9112

Compact durable kit containing the essential items for the treatment of open wounds and traumatic injuries in any pre-hospital setting. Pocket sized, vacuum sealed first aid pack designed with the Law Enforcement, Military and Security Professional. When seconds count, L.I.F.E. pack will buy you time within that "Golden Hour". To Be Used By Professional Rescuers and First Aid Trained Personnel. Made in the USA. Wound Packing Gauze, Two 4" x 4" Gauze, Tourniquet, 5" x 9" ABD Pad, 4" x 4 yd. Roll Bandage, Two 4" x 3" Sponges, Adhesive Tape, Triangular Bandage, Non-Latex Gloves.

MADE IN THE
USA

REG. \$69.95

**Now
\$59.95**

MULTI-PURPOSE POCKET SURVIVAL TOOL

ITEM #02-9960

Must have survival tool that fits into your vest, pack or pocket. Solid stainless steel. Eleven useful functions: can opener, knife edge, flat screwdriver, cap opener, ruler 2/4 position wrench, butterfly screw wrench, saw blade, direction ancillary indication, and lanyard hole. Packed in a business card size storage case! Measures 2¾" x 1¾".



REG. \$14.95

**Now
\$6.95**

LIFESTRAW WATER FILTER

ITEM #13-0019

The LifeStraw personal water filter, a "Best Invention of the Year" (Time magazine) winner, enables users to drink water safely from contaminated water sources. LifeStraw is ideal for homeowners during emergencies such as local flooding which can contaminate drinking water supplies. LifeStraw is also ideal for campers and hikers who may be drinking from rivers or lakes and are unsure of the water safety. Lightweight and compact makes it great for travelers. The most advanced personal water filter available today. LifeStraw surpasses EPA guidelines for E. coli, Giardia, and Cryptosporidium oocysts, rigorous standards for water filtration.



REG. \$29.95

**Now
\$22.95**

5 GAL. SOLAR SHOWER

ITEM #02-0277

Our solar shower guarantees a hot shower anywhere; camping, beach or poolside. The Black color absorbs the sun's rays to heat the water (without any batteries!). Easy to operate on/off hose valve and easy to hang, with included cord and hook. Lightweight and compact for easy transport and storage. Stores enough water for 3 - 4 showers. Made of non-toxic PVC. Measures 17"L x 21"H.



REG. \$11.95

**Now
\$9.95**

REQUEST A FREE CATALOG AT MAJORSURPLUS.COM

🏠 VISIT OUR STORE: 435 W. Alondra Blvd. Gardena, CA 90248 🏠

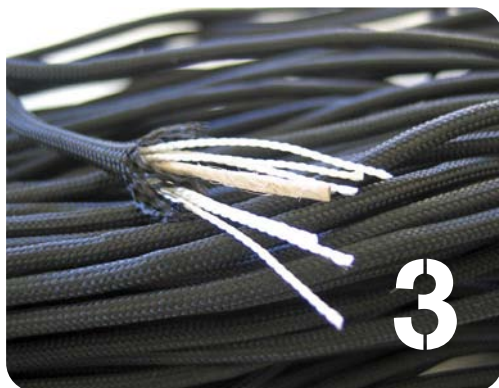
1. WARM AND BUG FREE

Product: Insect Shield Outdoor Blanket
Manufacturer: Insect Shield Int.
Contact: InsectShield.com
MSRP: \$29.95

Made from 100 percent polyester, the 56 x 74-inch blanket is infused with permethrin, which is designed to repel mosquitoes, ticks, flies and fleas, including those that can carry dangerous diseases such as Lyme and malaria. The repellent is odorless and long-lasting, as long as you don't dryclean it (machine wash only).

Specifications:

- 100 percent polyester
- Weight: 18 ounces
- Dimensions: 56 x 74 inches
- Do not dry clean.



2. SIMPLE CHAIN SAW

Product: SaberCut Chain Saw
Manufacturer: Ultimate Survival Technologies
Contact: CheaperThanDirt.com
MSRP: \$16.57

The SaberCut chain saw is a simple, hand-operated chainsaw that is compact and easy to use. It features a 24-inch flexible steel blade that is coated in black oxide and has the ability to cut through most any wood. The wrist straps are nylon and the package includes a nylon carry case with a quick clip buckle. The saw can be extended by simply adding rope/paracord to each strap. The saw cuts and clears in both directions, is self-cleaning, and can be sharpened with a standard 1/8-inch blade sharpener.

Specifications:

- 24-inch flexible blade
- Nylon wrist straps
- Self-cleaning
- Weight: 6 ounces



3. KINDLING PARACORD

Product: Jute 550 Cord
Manufacturer: JHL Supply
Contact: CampingSurvival.com
MSRP: \$10.99

Available in black, olive drab or coyote brown, this appears and functions exactly like a regular length of 550 paracord, but the difference is that one of the seven strands of cord inside the sheath is made of jute cord, which is a soft fiber made from vegetables and makes great tinder to help start a fire. Comes in 100-foot lengths.

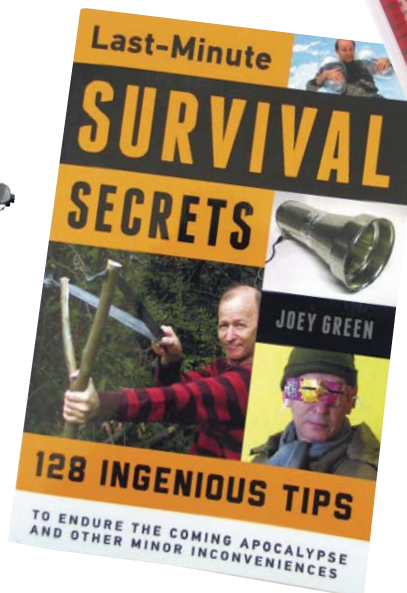
Specifications:

- Comes in three colors
- 100-foot length



4

5



6



4. TORNADO SAFE

Product: Twister Pod
Manufacturer: Survive-a-Storm
Contact: Survive-A-Storm.com
MSRP: \$2,997.00

The Twister Pod by Survive-a-Storm is a practical, above-ground storm shelter for up to four occupants. With a powder-coated finish, curved door, and welded-in seating, this storm shelter is the ideal solution to withstand an EF5 tornado. The Twister Pod Storm is engineered to easy install in an existing garage, carport, or on an outside patio. It has a keyed door, is made from heavy-duty galvanized hardware, and a large vent for ample ventilation.

Specifications:

- 6 feet of interior height
- Neutral color
- $\frac{3}{16}$ -inch steel
- 4 feet in diameter
- Interior: 75.4 cubic feet, 12.57 square feet

5. SIMPLE SURVIVAL SECRETS

Product: *Last-Minute Survival Secrets*
Manufacturer: Chicago Review Press
MSRP: \$16.95

Joey Green authors an entertaining and informative book called *Last-Minute Survival Secrets*, a 240-page collection of DIY tricks and methods that can help solve most emergency problems that crop up in a variety of survival situations using every day items. Joey showcases a variety of handy and unusual uses for products commonly found in the pantry, garage, and medicine cabinet to assist those in perilous situations.

Specifications:

- Size: 5.5 x 8.5 inches
- 240 pages
- 275 color photos

6. TRIGGER KNIFE KIT

Product: Trigger Model Knife Kit
Manufacturer: Klecker Knives
Contact: KleckerKnives.com
MSRP: \$12.95

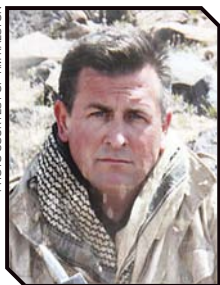
The Trigger is a knife kit that enables kids ages seven and up to build their very own model of a folding lock-back knife. Just like Klecker Knives' original Nathan's Knife Kit, this is a great way for adults to teach kids about the functions and safe handling of a folding knife with the safety concerns of a real knife. Kids have fun building it and taking it apart again over and over. You mix colors from two or more kits to make a customized knife.

Specifications:

- Blade: 3.2 inches
- Closed Length: 4.2 inches
- Open Length: 7.3 inches
- Weight: 0.8 ounces

ASG

CAN'T GET ENOUGH ASG? WHEN YOU'RE NOT OFF THE GRID, BE SURE TO FIND US ON [FACEBOOK](#).



PREPPING WITH RALSTON

BY TIM RALSTON

Timothy Bryan Ralston is an American inventor, veteran, adventurer, author and movie consultant for his expertise in the field of survival and preparedness education. He is best known for his appearance in the powerful motivational film, *The Compass*, and for being the international spokesperson in the launch of NatGeo's No. 1-rated program, *Doomsday Preppers*.

Preparing On A Budget

There are a lot of excuses people give for why they don't prepare for emergencies.

I don't have time. It's too difficult. My personal favorite? It's not going to happen to me.

There is only one explanation that holds some validity, and that is for economic reasoning. It's understandable that someone struggling financially may have a difficult time justifying spending money on unpredictable—or unpredictable—events. Unfortunately though, disasters do happen. And if not prepared, the cost you pay in suffering has more than just a monetary value.

The good news is there are countless ways to prepare, all while staying in budget. I have compiled a list of techniques that are low-cost or even free of charge. As long as you have a willingness to think outside of the box and roll up your sleeves, you can be prepared for any emergency.

Savvy Shopping

There are ways to get all of your preparedness supplies without breaking the bank. All it takes is knowing the right stores, the best deals, and maybe using a coupon or two.

Grocery Stores

Scour the clearance sections. Most grocery stores and pharmacies have killer ones, often hidden somewhere in back. You can find canned and packaged foods, medicines, hygiene products, hardware, alcohol, and other useful items, all for a mere fraction of the original cost. While some items you have to be wary of due to expiration dates or denting, others

are simply reduced because they weren't selling.

Look for case sales. Every once in a while, some stores offer products sold by the case for discounted rates. You will get the benefit of buying in bulk without the Costco membership fee.

Utilize the purified H₂O machines out front. By filling your jugs yourself, you save 75 percent of what it costs to buy them inside the store.

Don't be afraid to cut coupons. These can really add up, especially if you pair them with the item when it is on sale. Every store has a weekly circular, which helps makes it easy to save on your preparedness list.

Look for stores that offer gas rewards. Big chains will give discounted rates on gas the more you shop. Since it is important to keep your tank at least three-quarters full to be prepared for emergencies, try and coincide some of your fill-ups with your rewards.

Thrift Stores

Stores like Goodwill are excellent spots for buying items of preparedness. Not only is it much cheaper buying secondhand, but every day they have sales, providing additional savings. Here are some examples of items you will find.

- Candles and flashlights
- Tools
- Kid's size and up items for BOB (shoes/clothing)
- Extra boots or sneakers to keep in your vehicle
- Glass jars and containers for DIY projects
- Garage organizational items

The beauty of thrift stores is that they change every day. If you can't find what you need, just go back a week later. I guarantee if you are persistent, you will find many of the items you will need.





Dollar Stores

Dollar Stores may not have the highest quality of items, but for certain things, it is the perfect place to shop. You can walk away with a full cart without spending a bundle.

- First aid products (Band-Aids, alcohol, aspirin)
- Paper products
- Cleaning supplies
- Small tools
- Batteries
- Sewing kit

Home Protection

Your home is known as your haven, which is why you should want to protect it. From natural disasters to burglaries, these suggestions will help keep you and your home safe from harm.

Prevention

It's important to take the initiative to get work done before a crisis, and not after. There are tons of preventative projects you can do around your home that will help protect it. No professional required, because these are all easy, simple, and effective solutions. For example, add additional locks, check door insulations, repair holes in roof, fill and store sandbags, dig small trenches to help with flood draining, trim away trees that may cause damage.

Security

Not everyone has an alarm system, as they can be quite expensive. There are other, very free things you can do to keep your house secure. Take these precautions to help deter thieves from your property.

- Keep all vegetation around your front door and windows trimmed back.
- Light up your house in all of the right places, such as in entryways.
- Don't let your mail and newspapers overflow when on vacation. Nowadays you can put a hold on these deliveries online with a mere click of a button.
- Keep your garage door closed. Don't show off your goods and make others wonder what else is inside.
- Discreetly discard boxes of any costly equipment. Don't advertise, "Look, I have a new big screen TV" by leaving the box on the curb.
- Get to know your neighbors, and consider starting a neighborhood watch.
- Don't advertise on social media your every move. If you are sharing pics while on vacation or even just out and about, you are also sharing the fact that your house is vacant.

Organization

You can own the coolest tools in the world, but if you can't find them during an emergency, they are pointless. Keep all of your preparedness supplies organized and accessible. Being that the power often goes out during a natural disaster, it is also a great idea to keep your house in general free of clutter.

Multi-purpose Tools

Space can become an issue while preparing, which is why multi-purpose tools are definitely the way to go. In addition to clearing up clutter, they also save you money; instead of buying several separate items, you only have to invest in one.

Gear Up Center is well known for its love of multi-purpose tools. We are the home of the Crovel, NAX, Recon 6 Watch, and the new X Caliber Adapter System.

Ingredients

When it comes to your food supply, it's smart to have ingredients that are interchangeable in your recipes. This is also true for home-made items such as soap, detergent, and hygiene products.



Coconut oil, baking soda, vinegar, Ivory soap, Borax, and washing soda are all cheap staple items you should have stored. Depending on how you mix them, you can make numerous products from toothpaste, to ailment cures, to cleaners, all for pennies on the dollar.

DIY Projects

It is much cheaper to complete a project yourself. There are many fantastic preparedness projects that produce items that work just as efficiently as ones that are store bought. With all of the money you save, you can reinvest in other areas of preparing.

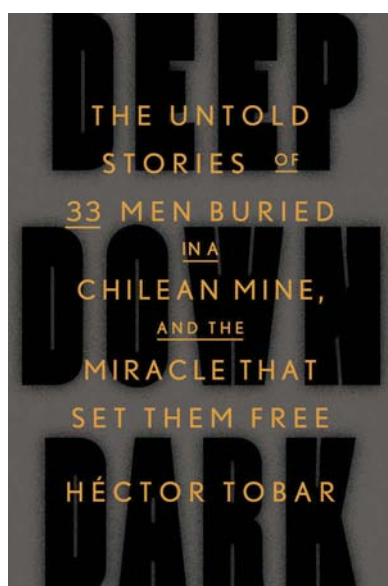
Here is a list of DIY ideas.

- Five-gallon bucket air conditioner
- Campfire in a can
- Solar cooker
- Solar USB charger
- Faraday cage
- PVC bow
- Hanging garden **ase**

DOOMSDAY PLANE

HERE'S A BIT OF A SECRET: The U.S. government has four "doomsday" planes for the president. They're called that because they can withstand greater forces from asteroid blasts, a nuclear bomb, and terrorist attacks, not to mention stay airborne for days without refueling, and up to a week with a midair refueling, according to an article from the *New York Post*, by way of News.com.au.

Other interesting tidbits include that it has a radiation-protected shell, satellite dishes, and room for a crew of up to 112 people—that's right, the largest crew for any military plane in the U.S. The "doomsday" plane isn't a new concept; it was first commissioned by Ronald Reagan. It's just not something the government likes to talk about. The last time one went into service was September 11, 2001. It's an E-4B, or a converted 747. It goes by the name National Airborne Operations Center and mirrors Air Force One.



SURVIVAL BOOK

Chilean Miners

The story about the mine collapse just outside of Chile that trapped 33 miners for 69 days back in 2010 is now being told in the book, *Deep Down Dark: The Untold Stories of 33 Men Buried in a Chilean Mine, and the Miracle that Set Them Free* by Hector Tobar, a Pulitzer Prize-winning journalist.

AT&T Invests \$13,000 In Emergency Prep For Students

WITH A \$13,000 donation from AT&T via its Innovation Award, Wisconsin classrooms will see a return of its Student Tools for Emergency Planning (STEP) program, which teaches fifth graders how to prepare for emergencies and disasters. Wisconsin was the first state in the Midwest to teach STEP during the 2010-2011 school year, and nearly 2,400 students from schools in the state participated; by 2013-2014, it was 8,000 students. The goal is more than 28,000 over the course of five years.



Emergency Preparedness, Sesame Street Style

SESAME WORKSHOP, the nonprofit org behind Sesame Street, and PSEG Foundation have partnered on free emergency preparedness and response initiatives—in both English and Spanish—aimed at families and children using the characters from *Sesame Street*. There's even a child-friendly app for prepping. Learn more at SesameStreet.org/Ready.

FREE-FLOATING QUOTE

“We came up with the idea of Zombie Preparedness Month because it is an engaging way to get people on board with emergency preparedness.”

—Angee Morgan, deputy director of Kansas Division of Emergency Management. The governor of the state signed a proclamation designating October as “Zombie Month.”



PHOTO COURTESY OF THE DISCOVERY CHANNEL

New Wilderness Survival TV Show

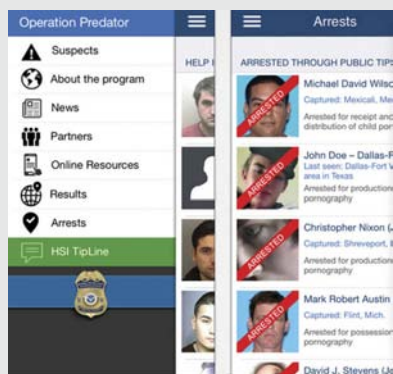
DISCOVERY CHANNEL has a new adventure series called *Tethered*, which the network explains “tests human’s ability to survive in some of the most extreme environments on the planet while enduring psychological torment like never before—being bound to complete stranger by a 6-foot tether.” Teams will get a map and a basic survival kit and an edict of 10-12 days to escape and be rescued. Survival situations over the course of the series will include sharks, bears, and alligators and even a waterfall.



PHOTO COURTESY OF THE NATIONAL SCIENCE FOUNDATION

Native American Disaster Preparedness To Be Studied

A GRANT WORTH \$327,000 from the National Science Foundation has been given to two researchers from the University of North Texas to study disaster preparedness among Native American communities. The three-year study will include surveying tribal leaders across the country to compare levels of preparedness.



PREDATOR APP

THERE'S A NEW APP from U.S. Immigration and Customs Enforcement (ICE) and Homeland Security Investigations (HSI) called Operation Predator. It's designed for you to help special agents identify and locate suspected child predators. Download it to get alerts when new suspects are being sought and for info about investigations and arrests. You can also give tips through the app.

New Tool For Classifying California Fire Threats

THE USDA FOREST SERVICE, San Diego Gas & Electric, and UCLA teamed up to create the Santa Ana Wildfire Threat Index, a web-based tool that features four classification levels for ranking the fire threat potential of something only California deals with: the dry Santa Ana winds. The four levels are: marginal (upon ignition, fires may grow rapidly); moderate (upon ignition, fires will grow rapidly and be difficult to control); high (upon ignition, fires will grow very rapidly, burn intensely, and be very difficult to control); and extreme (upon ignition, fires will have explosive growth, burn very intensely, and be uncontrollable). It's all in an effort to help the public understand the risk of a red-flag warning.



New Autonomous Navy Swarmboats

THE OFFICE OF NAVAL RESEARCH has created a brand-new technology that for the first time will allow unmanned surface vehicles (USV) to swarm around offensively hostile or suspicious vessels. Called Control Architecture for Robotic Agent Command and Sensing (CARACaS), the USVs can do the dangerous work that manned vessels cannot, meaning no humans would be at risk. The USVs would be able to detect, destroy, or deter, although any weapons fired from them would be done by humans.



U.K. Does Eight-Hour Ebola Drill

A NATIONAL EXERCISE involving government departments and medical professionals—from ambulance drivers to hospitals—was designed to test preparedness in the U.K. for an actual Ebola case. The exercise was ordered by the Prime Minister, David Cameron. Said Health Secretary, Jeremy Hunt, "This exercise is just one small part of our ongoing contingency plans for Ebola. It builds on activity we routinely practice for a wide variety of illnesses and other emergencies." No word on how it went, other than they have spotted what needs to be improved. **ASB**

RECON SLEEPING BAG



Rating 41° F
Weight 2.5 Lbs



Rating 23° F
Weight 3 Lbs



Rating 14° F
Weight 3.2 Lbs



Rating -4° F
Weight 4.3 Lbs



SURVIVE

ELITE™

SURVIVAL SYSTEMS



MISSION PACK

THRIVE

BACKPACKS

- ☐ WEAPON CASES
- ☐ TACTICAL
- ☐ BAGS & LUGGAGE
- ☐ BELTS & ACCESSORIES
- ☐ CONCEALMENT



TOLL FREE 866.340.2778

Stories of Survival: **Victor Heiser**

THE JOHNSTOWN, PENNSYLVANIA FLOOD SURVIVOR WHO SAVED MILLIONS

By **Bryan Dumas** | Photos Courtesy of Library of Congress



It was an unusually cold, steady rain for late May, and the Conemaugh River began spilling its banks, leaving knee-deep water throughout the city of Johnstown, Pennsylvania. The people of Johnstown had been through this before; their city lay nestled on a high valley flood plain in the shadows of the Appalachian Mountains. They worked together to get merchandise from shops up to second floor storage rooms,

household goods were stuffed into upstairs bedrooms, and animals were let loose from their bindings in barns across town.

No one flinched when the warnings came through the telegraph that the dam up stream may fail. They'd heard it before. There was a time, years ago, when people spoke of the possibility of the dam bursting, but the wealthiest people on earth were, after all, maintaining it.

Originally published by Kurz and Allison Publishers in 1890, an unknown artist painted "The Great Conemaugh Valley Disaster" subtitled: "Hundreds Roasted Alive at the Railroad Bridge."

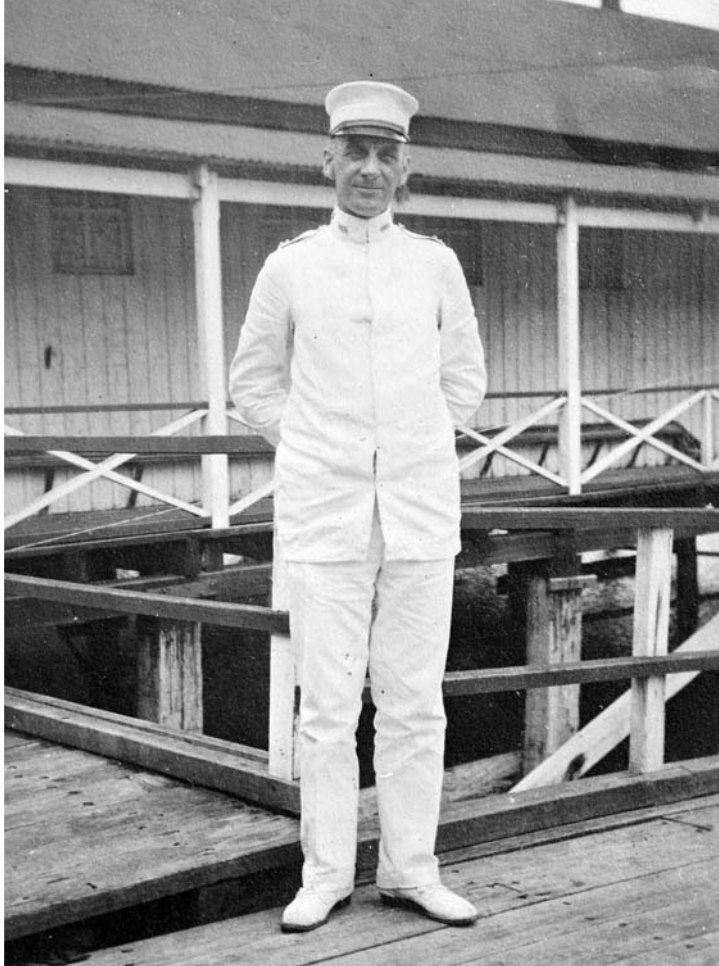
Fourteen miles upriver from Johnstown stood one of the largest earthen dams in the world. Initially constructed by the Pennsylvania Mainline Canal, the South Fork Dam was purchased by the South Fork Hunting and Fishing Club from the Pennsylvania Railroad who had abandoned the dam shortly after the Civil War. Rebuilt by the club, it rose nearly 80 feet over the valley floor. Behind it sat Lake Conemaugh, a two mile long, one mile wide—at its widest—and 60 feet deep pleasure lake for Pennsylvania's elite including Andrew Carnegie, Henry Clay Frick, and Philander Knox.

No matter how hard the rains fell, the South Fork Dam had always held. A sense of complacency fell over Johnstown, despite what some called "the sword of Damocles hanging over Johnstown." One of those who were concerned was Daniel J. Morrell, president of the nearby Cambria Iron Company and the most powerful man in the valley.

Morrell was concerned enough to become a member of the elite club and bring in his own engineer to inspect the dam. Though none of the original reconstruction was done with the advice of engineers, the discharge pipes at the base of the dam were removed, the spillway covered in netting to prevent the lake's precious trout from escaping, and the top of the dam was actually lowered to accommodate two-way traffic, Morrell's concerns were dismissed off hand by the club's president, Benjamin Ruff. "You and your people are in no danger from our enterprise." Morrell would die four years before the sword came crashing down on Johnstown.

A long-time resident of Johnstown put it succinctly when he said, "People wondered, and asked why the dam was not strengthened, as it certainly had become weak; but nothing was done, and by and by they talked less and less about it, as nothing happened, though now and then some would shake their heads as if conscious the fearful day would come some time when their worst fears would be transcended by the horror of the actual occurrence."

On the morning of May 31, 1889, above the tranquil valley in his cabin at the Fishing Club, newly elected club president, Elias Unger, woke to a sight he'd never imagined. The lake had risen two feet overnight. In fact, modern forecasts have estimated that the entire region had received nearly 10 inches of rain in 24 hours. So much rain had fallen that normally calm creeks raced like violent rivers.



[ABOVE] At the age of 16, Victor Heiser was the sole survivor in his family. He went on to become a doctor and was instrumental at finding a cure for leprosy, saving millions of people. **[BELOW]** Railroad cranes removing the debris at Bridge Number 17.





[FROM TOP] The debris-clogged bridge claimed many lives. ● Looking down Main Street of Johnstown after the flood in 1889. ● Evidence of the wreckage and debris left by the flood remained for many years.

Stories of Survival: **Victor Heiser**

Unger gathered the grounds crew and together they frantically tried to hold back Lake Conemaugh. The front of the dam had become a honeycomb of water and resembled a water can. Atop the dam, Unger and his men tried to clear the fish netting which now blocked the only spillway for the dam with trees and other refuse. There was even an attempt to cut a second spillway along the far edge of the dam, but this was ultimately abandoned. Twice, Unger sent his chief engineer down stream to the nearby town of South Fork to alert the telegraph office of the dire circumstances at the dam. At 1:30, Unger realized that their effort were futile and ordered his men to higher ground. All they could do now was watch. At 3:10, the dam gave way and within 40 minutes, 20 million tons of Lake Conemaugh had completely drained from behind the dam.

In Johnstown, 16-year-old Victor Heiser stood beside his father in their home on Washington Street. As they watched the water reach knee height, the elder Heiser became concerned for their two horses in the barn behind the house. He sent his son to work his way through the rising waters to untie the horses. A block away on Locust Street, Mrs. Anna Fenn sat in the family home surrounded by her seven children. She watched the water rise and worried about her husband, John, who'd gone to their tinware and stove shop to move merchandise to a safe place. As the waters rose around his store, John Fenn decided to rush home to be with his family. What neither of them realized was that the South Fork Dam had already failed and 20 million tons of water—the equivalent to the amount of water flowing over Niagara Falls in 36 minutes—was rushing toward them.

By the time the floodwaters reached Johnstown, it had ripped through four towns—leaving only bare stone where one once stood, the Gautier barbed wire factory where it gathered miles of wire, and the Cambria Iron Works. It had picked up dozens of locomotives and railcars, countless buildings, the bloated bodies of almost 400 people—314 from the town of Woodvale alone—and an untold number of animals. It was traveling close to 40 miles per hour and reached heights of 60 feet.

Victor Heiser had just released the horses and was turning to return to the house when he heard the crashing waves enter the city. From his memoir, *An American Doctor's*

Odyssey, Heiser noted, “The dreadful roar was punctuated with a succession of tremendous crashes. I stood for a moment, bewildered and hesitant.”

In the second-floor window of his boyhood home, he saw his parents frantically waving for him to climb to safety. Turning, Victor raced to the only safe place he could—the roof of the barn. Panicked he turned toward the wall of water churning toward him. “It was not recognizable as water, it was a dark mass in which seethed houses, freight cars, trees, and animals. As this wall struck Washington Street broadside, my boyhood home was crushed like an eggshell before my eyes, and I saw it disappear.” Victor Heiser’s parents would become two of the total 2,209 people killed in the Johnstown Flood. But for Victor, this was only the beginning of his perilous fight for survival.

“EVERYTHING WAS DARK, THE HOUSE WAS TOSSING IN THE WATERS, BUT SHE COULDN’T TELL THE EXACT MOMENT THAT HER CHILDREN GAVE UP THEIR GRASP AND SUCCUMBED TO THE WATERS.”

Within seconds, the tempest smashed against the barn. Victor clung to the roof shingles expecting the worst. However, instead of being smashed to pieces, the barn was lifted completely off its footings and tossed in the water. It began to roll and tumble in the water like a barrel, sending Victor scrambling to his feet. Stumbling, crawling, racing, he struggled to keep himself topside. Directly in his path was the Fenn house, and inside yet another horror unfolded.

We can only imagine the fears that John Fenn felt when he heard then saw the wave approach, but we do know that he never reached his home. Inside the home, Anna Fenn clung to her baby while the other six children grasped hopelessly at their mother’s dress. Anna would later recall that the water rose until their heads were touching the ceiling. Everything was dark, the house was tossing in the waters, but she couldn’t tell the exact moment that her children gave up their grasp and succumbed to the waters.

Outside, Victor continued to tumble across the rolling barn as it sped toward the Fenn house. Just as the barn was about to smash into the home, Victor leapt “into the air at the precise moment of impact. But just as I mirac-



[FROM TOP] The Sister of Charity Catholic Church and school was left in complete ruins. ● Heiser described the oncoming flood as a succession of tremendous crashes. ● caption please



[FROM TOP] The wooden structures of the town were no match for the fierce floodwaters. • After the flood, a “survivors’ camp” was erected just outside of what was left of the town.

ulously landed on the roof of her house, its wall began to cave in....” Victor clung helplessly to the eaves of the shattered roof while Anna Fenn was swept into the roiling waters. As his hands finally lost their strength, Victor fell into the abyss below him. Fortunately, Victor landed atop the familiar barn and once again, he was rafting wildly through the demolished remains of Johnstown. “Lying on my belly, I bumped along on the surface of the flood, which was crushing, crumbling, and splintering everything before it. The screams of the injured were hardly to be distinguished above the awful clamor; people were being killed all about me.”

Everyone reacts differently to crises and the stresses that they bring about. Victor did

everything he could to survive. Jumping from building to building and doing what he could to stave off certain death. Not everyone reacts this way. Some freeze like those who stood dumbfounded as they watched the wall of debris and water sweep them off their feet. Others, like the Musantte family, went into a hysterics. As Victor dealt with the danger of managing his plank of a ship through waters tangled with barbed wire, rafter beams and trees being pushed up and sunk back into the water he watched as the Musantte family frantically tried to pack their Saratoga trunk with all their household possessions. Moments later, the barn floor they were adrift upon was smashed and the entire family drowned.

Eventually, Victor found himself on the roof of a two-story brick building that had withstood the raging flood. He huddled there with nineteen other people. He watched Anna Fenn drift by clinging to a tar bucket that had spilled its contents all over her. A mere ten minutes had elapsed from the time the family barn was hit by the wave until he found his final refuge. In the distance, the stone bridge of the Pennsylvania Railroad had acted as a dam, capturing all the debris and bodies. Sometime that night, the debris caught fire. Years later, Victor would reminisce: “I can still hear the maddened shrieks of the men, women and children, as the flames approached. I joined the rescue squads and we struggled for hours trying to release them from this funeral pyre, but our efforts were tragically hampered by the lack of axes and other tools. We could not save them all. It was horrible to watch helplessly while people, many of whom I actually knew, were being devoured in the holocaust.”

Victor Heiser would leave Johnstown, work a few odd jobs, and then enroll in medical school. As a medical doctor in the Navy, he travelled the world for three decades working to prevent disease, rather than just cure it. That Victor Heiser survived his ordeal is nothing short of a miracle. His fight for survival was an intensely personal one, almost selfish in that he was fighting for himself while others died around him. What he could never have known, as he clung to the side of the Fenn house or ran across the rolling barn, was that his fight for survival ended up saving so many more lives. For, sometimes all it takes are the selfish, instinctual survival behaviors of one person to have a selfless impact on the lives of millions. **ASB**

ANY MISSION. ANY DAY.



ORIGINAL
S.W.A.T.

Whether you serve your country or community, Original Footwear stands behind every boot we make. Our unwavering objective is to design, develop, produce, and deliver the most reliable military and law enforcement footwear available.

Battle-ready since 1969.

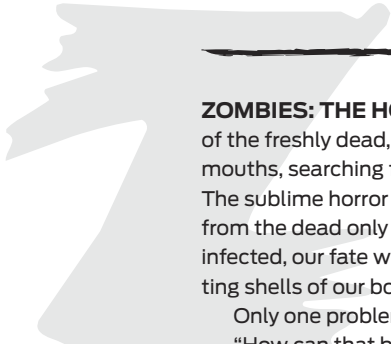
ALTAMA®

Visit us at SHOT Show, Booths 20149 and 31003

NO ZOMBIES

FIVE REASONS WHY THE ZOMBIE APOCALYPSE CAN'T HAPPEN

Story by **Scott Fisher** | Illustrations by Tris Mast



ZOMBIES: THE HORROR ICON OF OUR AGE. The reanimated bodies of the freshly dead, shambling and shuffling with empty eyes and open mouths, searching for the flesh — and especially the brains — of the living. The sublime horror of seeing our friends, family, and loved ones return from the dead only to seek to devour us. The dread that if we, too, are infected, our fate will be the same as theirs: to roam the Earth in the rotting shells of our bodies, spreading death and terror before us.

Only one problem: it's impossible.

"How can that be?" you ask. "The movies/books/TV shows are full of scientific explanations for how these zombies have all appeared and are desperate to crunch through our skulls to the tasty filling! It's a virus/radiation from space/mutated parasites/some other explanation."

Thing is, movies/books/TV shows only have to give enough of an explanation to make you stop thinking it's nonsense. So giving a plausible explanation is part of any fictional movie/book/TV show, whether it's a soap opera or a zombie apocalypse. Whether it's believing that the hot guy and hot gal who hated each other before the first commercial break will end up in bed before the final credits, or watching ravenous hordes of our decaying friends and neighbors knock down our doors and windows to rend our flesh with their teeth, we have to have just enough belief not to question every page or episode. Because that's how fiction works—through the willing suspension of disbelief.



Herewith, then, are the reasons why a zombie apocalypse is, and will always be, fictional:

GRAVE DIGGERS

Dead bodies can't burst from their graves. It's a wonderfully eerie part of most zombie movies: The earth atop a grave begins to swell, then vibrate, then break apart, and out thrusts a grisly, decomposed hand, followed by another, and then the head and torso of the zombie breaks forth to eat the brains of the living.

Except they can't actually do that. Even living people can't break out of their coffins and claw through six feet of earth. Disagree? Tell that to a man known only as "Jenkins," from Buncombe County, New York. His corpse was

covered by six feet of earth making it impossible to lift the lid, each breath using the last available air until their gasps eventually stifled them in a suffocating panic...

"But those were living people!" you no doubt respond. "Zombies could keep going because they would already be dead and wouldn't need to breathe!" Which raises the next point.

THIN AIR

Muscles need oxygen to function. In fact, here's how muscles work: the living body sends glucose (sugar) to the muscles through the circulation of the blood; the glucose is turned into adenosine triphosphate (ATP),

"HE HAD BEEN BURIED ALIVE, AND HIS STRUGGLES TO ESCAPE WERE FUTILE."

exhumed in February 1885; his body was found to be turned over onto his stomach; his hair was torn out, and scratch marks were found on the inside of his coffin. He had been buried alive, and his struggles to escape were futile. Or consider a woman (last name Collins) from Woodstock, Ontario, Canada, who in January 1886 was disinterred only to be found with her knees tucked up under her body and her burial shroud ripped into shreds. Their deaths must have been horrific: confined in a box with no light,

which gives the muscles energy. It's called cellular respiration, and it's the basic chemistry of how living things work.

But while there are some microorganisms that don't use oxygen for cellular respiration, humans aren't in that class. We require oxygen to create ATP, which is what causes muscles to contract. So let's go back to that zombie who has just been reanimated in his coffin. Sure, he's dead, so the whole "suffocating panic" thing doesn't apply.



While a living human who wakes up in a coffin will eventually die from oxygen starvation (which first causes the brain to cease functioning, then the nerves, and finally the muscles—remembering that the heart is a muscle), an already-dead zombie will also eventually run out of oxygen to fuel cellular respiration. Result: no more muscular movement to push through the soil and breathe once more the sweet, sweet air of the living. So even if the zombie virus/space radiation/mutated parasite inhabits the central nervous system of the host and causes the nerves to fire (see point 4), the lack of oxygen in the muscles means there'd be no movement.

“Well, what about a dead body lying on the ground?” you ask. “Surely they would have access to oxygen!” True, they would ... but there's a fundamental issue with that, too.

BLOOD LUST

Oxygen has to get to the muscles. The circulatory system (that is, the heart and blood vessels) take glucose and other nutrients to the muscles and take away carbon dioxide as the waste product. This means that the zombie would have to be breathing, taking in fresh air and exhaling carbon dioxide.

But of course, that wouldn't do either, because for that to work the heart also has to be beating, making the blood pump through the arteries and back through the veins. Which sounds an awful lot like not being dead. Since the whole point of being a zombie is that they are dead, and then they start wandering around chomping people and making more zombies, there's a fundamental conflict: Zombies, being dead, are typically described as having no pulse. No pulse = no circulation. No circulation = tissue death. And that leads to...

DEAD MOVEMENT

Dead tissue can't move. Cellular respiration requires living tissue, because the chemical reaction required to make a muscle move requires those muscle cells to be alive. Once tissue death (also called necrosis) occurs, it's not reversible. That's sort of the definition of death: yes, if the heart stops briefly we can sometimes restart it, with a defibrillator or CPR or other mechanical means, but once the cells start to die, those changes are permanent. You can't turn chicken soup back into a chicken. So let that virus/space radiation/mutated parasite zap those nerves to its heart's content (assuming it has a heart, but that's another question entirely): eventu-



ally the tissue will be dead, at which point no amount of nervous stimulation will cause the muscles to move. And similarly, once the nervous tissue itself is dead, no amount of stimulation of the dead nerves by virus/space radiation/mutated parasite activity will transmit signals down the neural pathways.

“But what about that guy who electrocuted the dead frog?” some of you are asking. You're no doubt remembering Luigi Galvani (1737-1798), famous for having touched a scalpel charged with static electricity to the sciatic nerve in the disembodied legs of a frog, causing them to twitch and jump. This, of course, led directly to Mary Shelley's *Frankenstein*, which of course involves the reanimation of dead tissue, though, of course, her monster is more a patchwork quilt of body parts than a true zombie.

However, the key to Galvani's discovery is that he was skinning a freshly killed frog when the electrified scalpel touched the exposed nerve. In my own misspent youth, I was able to keep the surgically excised heart of a freshly killed frog alive, in a solution of its own blood mixed with fresh water, for nearly 30 minutes



"AT THIS POINT, WHAT WAS ONCE MUSCLE GRADUALLY BECOMES A KIND OF THICK SOUP, AND EVEN THE CONNECTIVE TISSUE HOLDING BONES TOGETHER CAN SOFTEN."

before motion completely ceased. (Full disclosure: I did not perform experiments at the time to determine whether the heart stopped beating because of cell death or because the oxygen and glucose had been eliminated. Hey, I was eight years old at the time.) The key words in my own grisly experiment and in Galvani's more famous one are, of course, "freshly killed." Because once necrosis sets in, you're on the way to the final destination...

DECOMPOSITION

Here's where things get ugly (yes, even uglier than an eight-year-old kid watching a frog's heart beat for half an hour in a glass jar). Scientists classify decomposition into five stages: fresh, bloat, active decay, advanced decay, and dry/remains. The fresh stage begins—you guessed it—the instant the heart stops beating. First, blood (no longer being pumped) pools in the lowest parts of the body; within three to six hours, rigor mortis sets in and the muscles stiffen; rigor mortis can last for 20 to 30 hours, depending largely on the temperature.

More importantly, without oxygen going in and carbon dioxide going out, the body becomes more acidic; cells lose their struc-

tural integrity and release enzymes that start breaking down the tissues. At this point, what was once muscle gradually becomes a kind of thick soup, and even the connective tissue holding bones together can soften. Finally, the "fresh" stage ends as bacteria in the body start to consume the body's carbs, fats and protein, in a process called putrefaction, which leads to bloat.

Let's just say things don't get better from here, neither for the decedent nor for the zombie enthusiast, because the next stages (as fans of forensics shows know) involve calculating time of death based on what is least disgustingly referred to as "insect development," among other things. (A perennial favorite: as fluids are purged from the body during active decay, they create what forensic scientists call a "cadaver decomposition island," or CDI, in which natural vegetation is suppressed by the grisly liquids exuded by the decomposing cadaver.) But basically, once the heart stops beating, the process of decomposition begins immediately, and within an hour or so, various critters—microbes, insect larvae, or if you've had the bad fortune to perish inside your home, your chihuahua suddenly deprived of its accustomed cans of chicken parts in tuna—begin to consume your flesh.

Even if a virus/space radiation/mutated parasite were to take control of a freshly killed body, there would only be a very limited time period during which the body would be capable of even rudimentary movement. Galvani's frog may have twitched or even kicked when touched with a scalpel, but it didn't grab a top hat and cane and start dancing the Michigan Rag. And within an hour or two, the muscles of our not-quite-a-zombie would stiffen up, making it impossible for any shambling, shuffling or other horrifying antics. Lastly, within 30 hours at the outside, bits of our not-quite-a-zombie would begin falling off, either because putrefaction had softened the tissues or because "insect development" had consumed enough body mass that there simply wasn't enough left for the not-quite-a-zombie to stand up, let alone bite through your skull for the delicious grey contents.

So fear not the zombie—at least, not until you walk past a graveyard at night and wonder what that flicker of activity just outside your field of vision really was. Surely just a leaf blowing in the nonexistent wind ... a cat on the prowl ... something far less terrifying than the pounding of your heart and the rushing of your breath makes you think it is. Pleasant dreams! **ASB**



ECLIPSE OWB - MSRP \$69.99 TO \$79.99

THE FOLLOWING FEATURES ARE AVAILABLE FOR THE ECLIPSE HOLSTER.



ECLIPSE SERIES HOLSTER

The Eclipse™ OWB "Outside the Waistband" Holster is the perfect alternative holster for those who would rather carry their firearm concealed securely on the outside of the belt rather than "Inside the waistband". The Eclipse™ is a Pancake style holster with a full sweat guard designed to ride close to the body and allow for a full combat grip.

- » Pancake Style Holster
- » Positive Lock Trigger Guard™
- » Smooth & Quick Draw while concealed
- » Contoured profile to fit snug to body
- » Dramatically reduces firearm "printing"
- » Increased stability on the belt
- » Will not collapse
- » Fixed belt loop sizes 1.5" or 1.75"

WWW.BLADE-TECH.COM

877.331.5793





Earth

When the Sun Attacks

**DEFENDING YOURSELF AGAINST SOLAR FLARES
AND THE SUN'S NATURAL PHENOMENA**

Story by **Larry Schwartz**

The sun, a glowing ball of hydrogen, helium, and massive magnetic fields 864,000 miles in diameter is composed of six layers; three make up the sun's "body" and three make up its atmosphere. Starting at its center is the core; here, the fusion of hydrogen produces all the light and heat we get here on Earth, is about 86,000 miles in diameter, and occupies about 10 percent of the overall radius.

The next layer is the radiative zone, where the energy from the core moves outward towards the sun's surface in the form of light through radiation; it makes up approximately 64 percent of the sun's radius.

The last layer of the sun's body is the convective zone, which is where the light from the radiative zone cools enough to turn into heat causing the plasma to bubble and rise towards the surface through convection. It makes up the last 26 percent of the sun's body. The first layer of the atmosphere is the visible surface of the sun known as the photosphere and is approximately 250 miles wide. The next layer, the chromosphere, is

approximately 1,300 miles wide. The sixth and final layer is the corona, which is composed of highly ionized gases; it is the glowing ring that we see around the sun during a solar eclipse. Since it radiates out in different distances and different levels of brightness, it does not have an actual outer limit like the other layers.

The gravity at the center of the sun, like in all stars, is incredibly strong, getting weaker as you move farther away from the core. Even though the core is only about 10 percent of its volume, it contains 40 percent of its mass. The weight of the remaining 60 percent of the mass pressing down on the core is what creates the pressure that keeps the temperature high in the core.

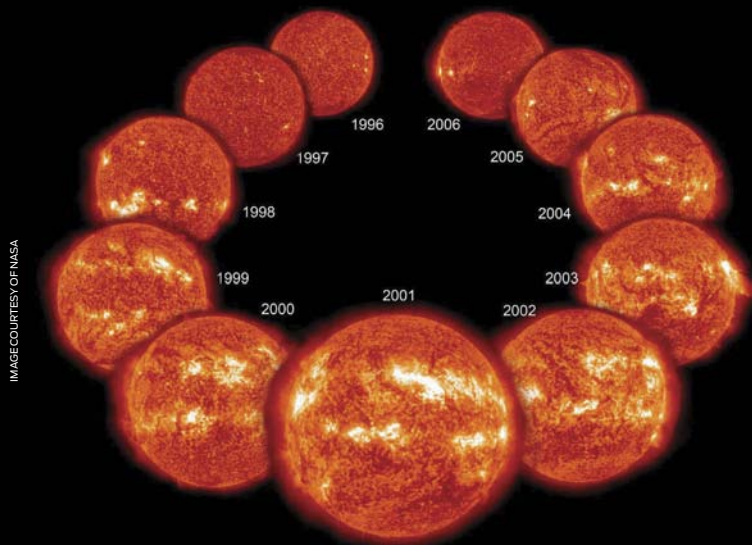
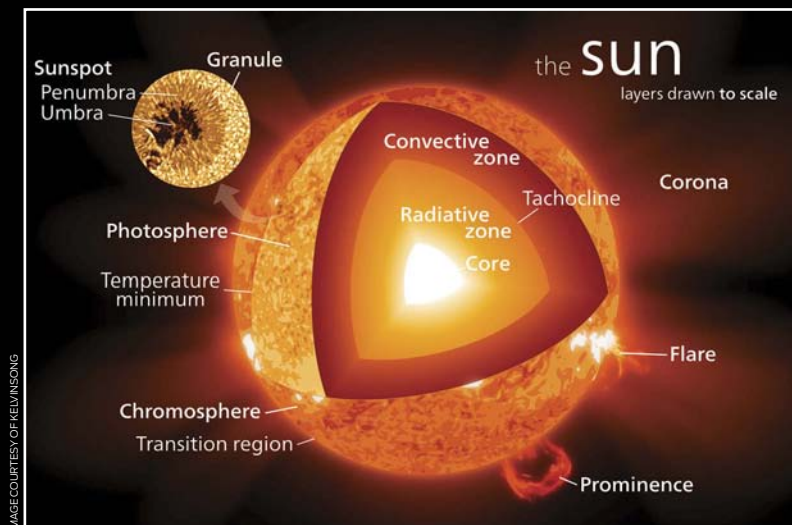
SOLAR FLARES AND OTHER STELLAR PHENOMENA

The combination of highly energized gases and plasma, coupled with the constantly moving and fluctuating magnetic fields, causes a number of phenomena on and above the sun's surface. These phenomena are normally associated with active areas on the sun's surface. The three phenomena covered here all form in or near the active areas.

Sunspots are cool spots on the sun's surface caused by magnetic fields looping, which slows the convection currents that move heat to the Sun's surface and makes it appear darker. The locations on the sun's surface where sunspots form are called active areas. Sunspots do not pose any danger to us on Earth, but the events that do occur in or near them can.

Solar flares occur when the magnetic fields cross each other. Where the magnetic fields have opposite polarity, the solar flare is formed, bursting out into the corona. The frequency of flares is based on their timing in the 11-year solar cycle. When the cycle is at its maximum, several flares can be observed each day, at its minimum, there is normally only one per day. Solar flares release high amounts of energy in the form of gamma rays and X-rays that can travel to Earth in a matter of hours or days, depending on the actions of the solar wind.

Once the energy released gets to our atmosphere, it can affect satellite to ground communications, such as GPS signals and satellite television. They can cause long-lasting, high-level radiation storms in the upper atmosphere. This radiation can damage sensitive satellite electronics, and even injure

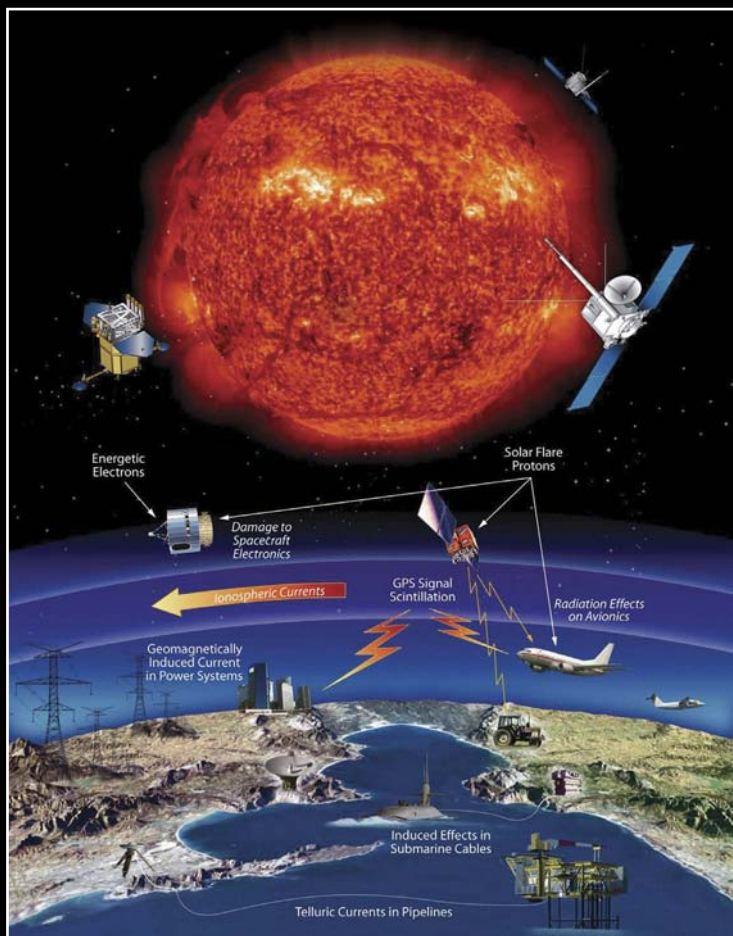


astronauts if they are exposed to high levels of these kinds of radiation. The Earth's atmosphere and its magnetic field which curves around the planet from pole to pole serves as a very effective shield against X-rays and gamma rays, but once the energy reaches the atmosphere, it can heat it, which can affect radio communications that travel at that level. Solar flares are classified in three levels based on their size and strength; X is the largest, M is the moderate size, and C is the smallest. In a report on a significant solar flare in 2011, NASA stated that, "X-class flares are the most powerful of all solar events that can trigger radio blackouts and long-lasting radiation storms, disturbing telecommunications and electric grids."

[ABOVE, TOP] The sun is a flaming ball of gases in six layers, all held together by flowing magnetic fields.

[ABOVE, BOTTOM] The sun goes through a cycle of 11 years where the activity on its surface goes from minimal to maximum. At its maximum is when solar events are most common and most powerful and dangerous.

"ON THE INDIVIDUAL LEVEL, THE MAJOR THREAT IS FROM THE ELECTRO-MAGNETIC PULSE (EMP) THAT COMES IN THE FORM OF THE MAGNETIC FIELDS THAT ACCOMPANY SOLAR FLARES AND CORONAL MASS EJECTIONS. THE BEST DEFENSE AGAINST THAT IS SHIELDING IN THE FORM OF A FARADAY CAGE, WHICH WILL SHIELD ELECTRONICS FROM THE PULSE."



Solar flares and coronal mass ejections have a varied effect on our technologies, whether they are in space or on the ground.

Coronal mass ejections (CMEs) are giant globs of solar plasma and magnetic fields that are ejected from the sun's corona and travelling away from the sun at tremendous speed and with tremendous energy. They occur when the strong magnetic fields that give structure to the corona get twisted and break, causing gaps. These gaps normally occur above sun spots. These breaks in the magnetic fields allow solar material, often in the range of billions of tons, to be released.

CMEs can cause similar damage as that found with solar flares but through a different mechanism. While the effect of solar flares is mainly in the upper atmosphere, a CME's effect is felt at lower altitudes and at ground level. As the plasma of the CME reaches the atmosphere, it also affects the Earth's magnetic fields, pushing against the field on the side facing the sun and compressing it. This also stretches out the field on the side facing away from the sun. This

change in the magnetic field moves the auroras down into the middle latitudes where it is visible to more people. The CME, if large enough, can also cause reach ground level at the poles, which can cause significant increases in the ground current running through the Earth. This increase in the ground current can damage power lines and power transmission facilities. These are relatively short-term problems that either only last a number of hours or can be repaired in a matter of a few days or weeks, but the ground current can also burn out massive, high-voltage power transformers. These are not items that power utilities have spares for sitting around; they normally take years to replace and are often custom made.

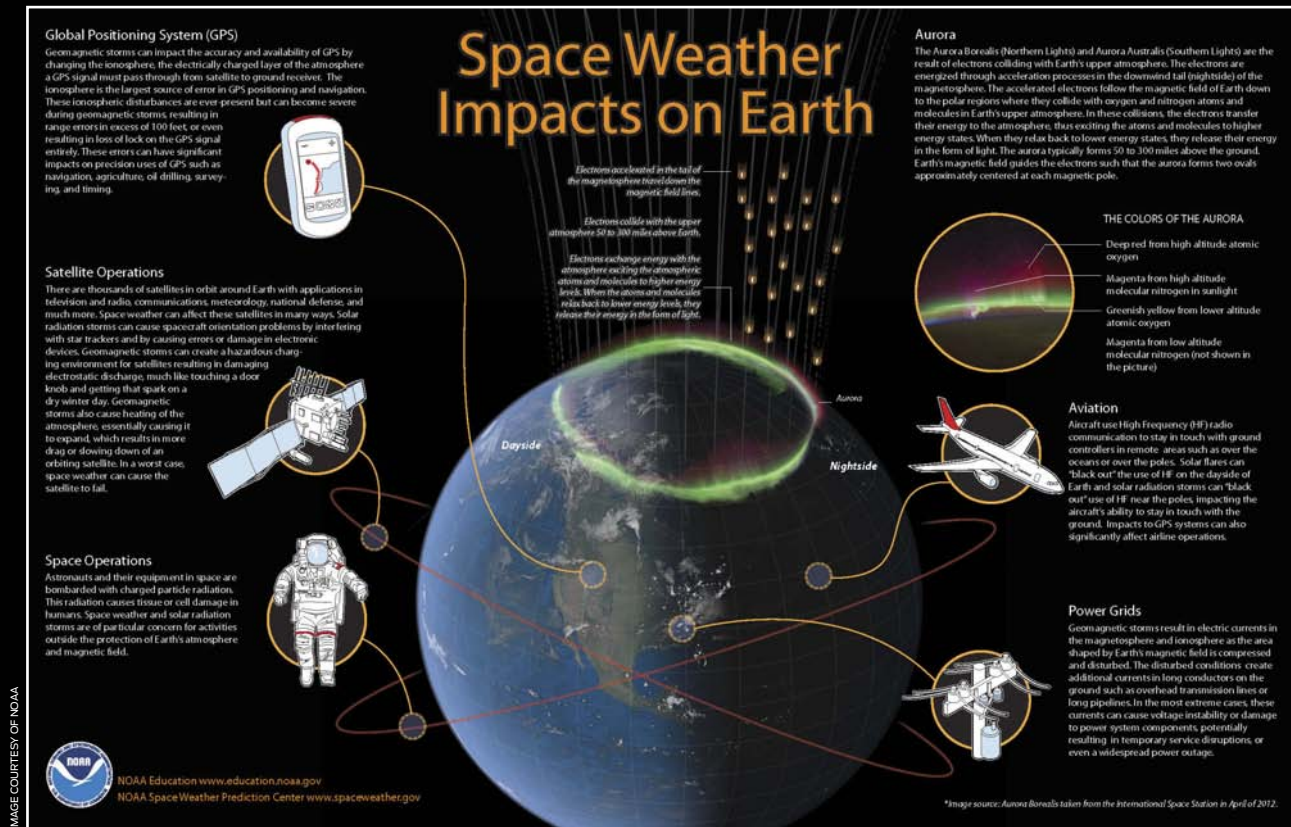
Although most of us are prepared at the family level to handle a loss of electrical power, many do not realize how much we—and the economy—depend on the presence of a reliable and widespread source of electrical power. Without electricity, the computers that run businesses and utilities don't work, cell phone towers don't work, gas pumps and water pumps that run on electricity won't work, refrigeration in homes and grocery stores doesn't work unless someone had the foresight to have a natural gas backup in place, tractor trailers can't get gas so they can't make their deliveries, and so on.

Dr. Jack Hayes, the director of NOAA's National Weather Service put it well when he said, "The Space Weather Prediction Center is critical to our economy because each time we use a cell phone, check a GPS locator, turn on a light, or take an over-the-pole airplane flight, space weather could have an effect."

HOW WE CAN DEFEND AGAINST IT

Most solar events affect us at the infrastructure level. Satellites that serve the military or other governmental purposes are already shielded from radiation and effects on their orbits can be changed by way of ground control. Power infrastructure on the ground is in the most peril as it is designed to be efficient, which also makes it more susceptible to the effects of large-scale solar radiation. Power utilities are putting some measures in place but progress is slow and outages are still a very real possibility should another X-class solar flare hit the Earth.

On the individual level, the major threat is from the electro-magnetic pulse (EMP) that



[ABOVE] Solar weather has dramatic effects on satellites, aircraft, and the other technologies that depend upon them. [BELOW, RIGHT] Sun spots form in the most active regions of the sun's surface.

comes in the form of the magnetic fields that accompany solar flares and coronal mass ejections. The best defense against that is shielding in the form of a Faraday cage, which will shield electronics from the pulse.

Prepare for a variety of scenarios. The electrical grid going down is just one of the many disaster scenarios we all prepare for by increasing our self-sufficiency.

In terms of preparations you can make, change how you live your life in case you have to do it without electricity for several months should the grid go down in your region and it takes a long time to bring it back up. Be able to generate your own electricity and be able to share it or trade your capabilities with your neighbors. Replace items like LED flashlights, alarm clocks, and telephones that have circuitry in them with simpler, non-electronic versions that will not be affected by the EMP.

For those items with circuitry that you do need, such as laptops or cameras or ebooks, make backups and place them in homemade Faraday cages. The same should be done with spares for the controllers for your car, solar panels, and anything else that requires a microprocessor to function. Then after the

pulse has passed, you will be able to replace the electronics in those items that are most vital to you.

And lastly, you should prepare yourself like you would for any natural disaster that disrupted the power grid and the accompanying shortages of food, water, power, and all the things that won't be found on the shelves of stores after a few weeks.

Solar weather events, like solar flares and coronal mass ejections, are not like other natural disasters. They do not come with several days advance warning, like hurricanes or tornadoes. At most they come with two or three day's warning provided by solar monitoring systems based in satellites. The time to start preparing for this kind of event is now, rather than just before it happens, so think about what you want or need to do and make it happen. **ASB**

FOR MORE INFORMATION

- There are several online resources that explain solar weather and how to prepare for its effects. Take a look at
 - > NASA.gov/Mission_Pages/SunEarth/
 - > Solar-Storm-Warning.com/How_To_Prepere_For_The_Coming_Solar_Storm.html
 - > SWPC.NOAA.gov/
 - > 4DTraveler.net/2014/09/22/Power-Out-Being-Prepped-For-The-EMP/

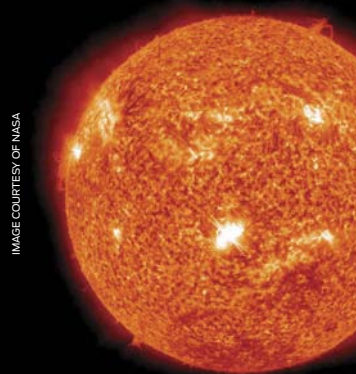


IMAGE COURTESY OF NASA



Once applied properly, a well-fitted tourniquet will stop an artery from bleeding. It will be very painful, messy, and difficult, but necessary if the patient is to live.

When The Blood Won't Stop

HOW TO PROPERLY APPLY A TOURNIQUET

Story and Photography by **Jeff Zurschmeide**

In the history of first aid, the simple tourniquet has probably saved more lives than any other invention. The device was known to Alexander the Great and continues to be used to this day to stop life-threatening bleeding. The situations and rules for tourniquet use are simple: Tourniquets are used only to control bleeding in the arms and legs in a last-chance effort to stop the bleeding. Sad but true, there are cases where someone applied a tourniquet to someone's neck to control bleeding from a head wound. That's not going to end well.

Understanding the proper way to apply a tourniquet in the field is a skill worth possessing, as the likelihood you'll encounter a life-or-death medical situation is quite high. Gareth Jones, a former U.S. Army combat

medic, has gained more than enough first-hand experience with tourniquets during his tour in Iraq and explains that there is a rather simple approach to applying a tourniquet.

When confronted with a situation where the injury is severe enough that a major artery has been severed and you feel the only method that will save the victim's life is a tourniquet, there are dozens of things that can be used to fashion one, from thick bootlaces, belts, and wide drawstrings to pack straps, electrical cords/wires, and ripped strips of cloth. Remember that you want to have a wide surface area, so a thin piece of string might cut into the skin; pad it with some cloth.

Once the tourniquet is in place, time is still critical to get the victim to a hospital. He or she is likely to have lost a lot of blood before you got the tourniquet

on, and it is likely that the victim will go into shock. Even if you have controlled the bleeding, this is still a serious medical emergency. If phone service is available, call 911 immediately, and arrange transport to a proper medical facility.

Tourniquets will not cause the limb to "die" and have to be amputated; that is an old myth. Your limbs can go several hours with a tourniquet in place without long-term damage, but you can bleed to death in three minutes from a wound to your femoral artery.

To treat the shock from blood loss, keep the victim warm and lying down. Check them frequently for breathing and pulse rate—you're hoping this will be as normal as possible. Signs of shock include rapid and shallow breathing, rapid and weak pulse, sweaty, clammy skin, turning blue, confusion, and passing out. **ASB**



1. Expose the limb and get some pressure on the wound. If someone is bleeding from the leg, you can put your knee down right on the inside of their thigh up by the crotch or up by the armpit for arms. You need to slow or stop the bleeding at the pressure point, and this method leaves your hands free.

2. You need a strip of cloth about an inch to an inch-and-a-half wide to get enough surface area against the artery. Don't use paracord or anything like that if you don't have to. It cuts into the flesh and creates another wound. Make the strip long enough to go all the way around the limb and still have room to tie a knot.

3. You need a stick or some object at least 4 inches long for the windlass, and another strip of cloth to hold the stick in place.

4. Place the tourniquet 2 to 4 inches above the wound, and not on a joint. Above the knee is best for legs, and above the elbow for arms. If you're in doubt, put it up as high as possible. Tie a half-knot in the cloth, insert the stick, and tie a full overhand knot on top of the stick.

5. Now, twist the stick until the bleeding stops. If the tourniquet has been applied properly, it's going to hurt – probably worse than the wound hurts. Then, use the second piece of cloth to tie the stick in place.

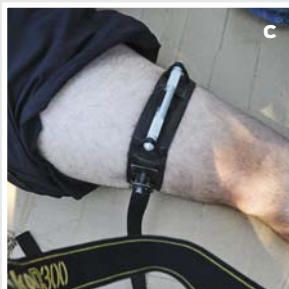
6. Once you apply the tourniquet, you don't take it off or the victim will start bleeding again. Get them to the hospital as soon as possible.

HIGH-TECH TOURNIQUET

CAT: Combat Application Tourniquet

If you want to be super-prepared, consider buying something like a reusable SOF Tactical Tourniquet or single-use Combat Application Tourniquet (CAT). These handy tools cost about \$30 each. You can put one on an injured person in an instant, instead of wasting time tearing your shirt and looking for a stick. The windlass is attached to the strap and comes with its own rings or hook and loop for locking the windlass in place. Best of all, you can apply a pre-made tourniquet to yourself if you're alone.

Maybe the most important thing you can do to be prepared for life-threatening bleeding is to get professional training in first aid. If you're trying to remember the details in this article years from now when someone you love is bleeding out, that's too late. The advantage of proper training is that it's hands-on. You're more likely to remember something you practiced than something you read about. But with that training and practice, you can be ready to save a life when the worst happens.



A. A single-use combat application tourniquet is around \$30 and can be used quickly and efficiently to stop arterial bleeding.

B. Applying a CAT is made easy because the windlass is attached to the strap and has hook and loop material to lock it in place.

C. If in a difficult situation and alone, the CAT can be applied to oneself. The only training necessary is an understanding of the concept of a tourniquet and its proper placement.

Head For The Hills?

IN THE EVENT OF DISASTER, HEADING FOR THE HILLS
MIGHT BE THE LAST THING YOU SHOULD DO

Story by **Carrie Visintainer**

It's a regular weekday morning in your urban neighborhood, but then suddenly everything changes. As you get into your car to drive to work, you turn on the radio and hear officials announcing an emergency in the local area. Maybe there's an approaching natural disaster. Or perhaps there's been a chemical or biological attack by terrorists, or an influenza outbreak is imminent. You listen closely to the information, take stock of the situation, and begin to consider your options. What will you do?

Some people don't have to think long. Their Plan A, which has been cemented for years, is to grab their bug-out bag and head for the wilderness. They take the steps necessary to pack up the whole family and begin driving toward the nearest trailhead, with hopes of living off the land and hiding from danger until the disaster resolves itself.

But is this the most practical plan? The debate is intense on myriad survivalist blogs. Some say it's natural to go back to our roots in the event of an emergency, hunting and fishing and purifying water from streams. But many experts disagree, citing that this is more of a romantic notion than a practical plan. M.D. Creekmore, author of the popular *The Survivalist Blog*, says the idea of leaving the security of home for the unknowns of the wilderness has never sat well with him, and he cautions against making decisions based on "emotion, instead of logic." He thinks that in most cases, there are better ways to survive disasters than heading for the hills.

"THERE ARE
BETTER WAYS
TO SURVIVE
DISASTERS THAN
HEADING FOR
THE HILLS."

PHOTO BY THINKSTOCK





"AFTER AUTHORITIES
HAVE ANNOUNCED
THE EMERGENCY,
THERE WILL BE
THOUSANDS OF
PEOPLE TRYING TO
ESCAPE THE AREA,
AND TRAFFIC WILL
BECOME CHAOTIC."

Paul Purcell, the author of *Disaster Prep 101* and a consultant who's worked in risk management, executive protection, corporate security, and on anti-terrorism efforts with local, state, and federal government agencies post 9/11, agrees. He believes that the idea of heading for the hills has gained popularity primarily as a result of the "Man Against Nature" movement, and because it's an independent, self-reliant way to respond to disaster. But when it comes to real life, his opinion is clear. "No emergency manager makes plans to evacuate a town into the woods in the event of an emergency," he says.

The reasons are multi-fold. First off, when heading for the hills, there's the big looming question, "Where am I going to go, and how will I get there?" Some survivalists have bunkers in remote areas, so that's an option for them. But most people don't. And especially for families living in urban areas, the wilderness may be dozens, or even hundreds, of miles away.

After authorities have announced the emergency, there will be thousands of people trying to escape the area, and traffic will become chaotic. Tunnels and bridges may close or clog. Major thoroughfares will likely look more like parking lots. In addition, traveling in public areas may expose you to

unsafe conditions, a contagious virus, or make you vulnerable to robbery or injury.

If you do manage to get away and find a secluded spot in the woods, there are so many important things to consider, such as food. What will you eat? Bug-out bags typically contain rations for up to a week. But in a major disaster, you may have to be gone for much longer. When your rations run out, do you have reliable hunting, foraging, and fishing skills? Even if your answer is yes, remember that the wilderness areas are likely to become crowded, and fish and game may become depleted quickly, leading to territory battles, theft, and a considerable lack of sustenance.

Finally, it's important to consider that when living off the land, nothing is within easy reach like it is at home. Real-life survival isn't the same as a camping in an RV lot with electrical hook-ups, running water, and bathrooms with showers. People must consider whether they truly know how to brave the elements, build a reliable shelter, purify water, and stay warm. For example, what time of year is it? If it's dead of winter, can you survive freezing temperatures and major snowfall? Most bug-out bags don't include things like sleeping bags and layers of clothing. If there are children in your family, espe-

cially babies or toddlers, the reality of surviving in the outdoors is an especially important consideration.

Another problem with heading for the wilderness—something that Purcell considers a “hidden concern,” because it doesn’t always immediately come to mind—relates to the bigger picture; the fact that each of us are cogs in the fabric of our community and overall society.

“If all of the corporate or key people, or even the one person at the factory who knows how to work a certain machine, head to the hills, then that factory shuts down and it’s an economic disaster, because the fabric tears,” says Purcell.

Which was the case after Hurricane Katrina. After the ducts were repaired and it was time to pump out water, there was a long delay, because the pumping equipment was antiquated and the only people who knew how operate it were the technicians who lived in the local area. But no one could find them, because they’d scattered. It took a long time to track people down and get the water pumped out.

Certainly, in the case of natural disasters like Hurricane Katrina or in other potential emergency scenarios, like if terrorists are torching every building in your town, evacuation can be a smart choice; the necessary response. But evacuation doesn’t have to mean heading to a remote area and hiding. Instead of escaping to a place where you can’t be reached or keep up with breaking news updates, Purcell suggests going to a hotel in a safe area where you have a standing reservation and a free membership card. These kinds of arrangements can be made in advance, so that you have a few places on your list with phone numbers.

Another option is to create a mutual arrangement with friends or family in an outlying area, agreeing that you’re welcome at each other’s homes in case of disaster. For example, Purcell suggests gathering a trunk of supplies and placing it in the attic of your friends’ home, as a way to “pre-set your nest.” They can do the same at your house. This way, you both bring your own supplies to the arrangement, creating mutual benefit. Creekmore also recommends gathering supplies for an evacuation bag that will get you “from point A to point B,” from home to your pre-arranged location.

But in response to the majority of emergency scenarios, in which evacuation isn’t



necessary, Purcell and Creekmore emphasize that the best idea, really, is to simply stay at home, hunkering down until things resolve. Purcell reiterates that modern humans are pretty used to creature comforts and aren’t truly prepared to head for the hills, living like our grandparents did, without running water or electricity for a long period of time. Plus, humans respond best to crisis when they are surrounded by as much comfort as possible. “Preparedness is about lifestyle preservation as much as it is about life preservation,” Purcell says. “It should be simple and subtle; something that can be incorporated into the average lifestyle.”

For example, food storage is easy at home. And although some families insist on buying nitro packs or MREs, Purcell says this isn’t always a good idea, because what if, for example, your child eats something she hasn’t had before, has an allergic reaction, and needs to go to the emergency room. In the case of a disease outbreak, hospitals may be at capacity or overwhelmed with contagious patients. He suggests utilizing the assets you’re familiar with, storing more of the foods you normally consume, with an emphasis on comfort foods.

“In crisis, stress is high, morale is crucial, and comfort food provides a sense of normalcy,” says Purcell. “Stock up a little bit at a

**“BUT EVACUATION
DOESN’T HAVE TO
MEAN HEADING TO
A REMOTE AREA
AND HIDING.”**



time until you have four weeks of food in the pantry. Rotate it in with everything else so that the next thing you consume is the oldest, with the newest in back.”

For first aid and health, Purcell suggests foregoing an expensive surgical kit and other costly supplies and instead spending your money on a CPR and first aid class. These workshops are even free in some communities. Above all, he says it’s important to know your plan about how to care for the ailments of family members if cut off from the medical system, especially for chronic conditions like asthma.

He also suggests that if you have the time and insurance coverage, to stay current on dental and physical check-ups. That way, if something is developing and you need to be seen, you take care of it early, and it also gives you a current medical baseline and updated medical charts and records.

“In the case of a pandemic, you don’t want to have to drive you to the ER,” he says.

There are also some simple ways to store water at home, which is much easier than purifying mass quantities in the wilderness. Of course, it’s possible the water supply will remain potable throughout the emergency,

but in case it doesn’t, Purcell suggests taking empty two-liter bottles of soda or milk jugs, filling them almost to the top, and freezing them.

“Put them in empty spots in your freezer and fridge,” he says. “In a power outage, not only will you have lots of water, you’ll have frozen ice packs to keep your food cold longer.”

Finally, Purcell recommends focusing on how a survivalist attitude at home might help in a post-disaster situation. Although outdoor survival skills are useful, he also recommends investing in other skill sets, learning anything you can—medical, dental, automotive repair, utility repair, plumbing, electrical, cosmetology—which might be essential for yourself and your family, and also may be useful in bartering with neighbors. Since everyone will be in the same boat, he says that you’re likely to build bridges, and not enemies, through networking and trading with the people who live nearby.

“Home security and self-defense are important,” he says. “But I also stash cigarettes, Jack Daniel’s, tampons, and toilet paper—things that people are likely to want or need.” **ASG**

PHOTO BY THINKSTOCK



Foliage's Fear

THE UBIQUITOUS **WOODMAN'S PAL** IS NEARLY 75 YEARS OLD

Story and Photography by **Ryan Lee Price**

Life among the rolling hills of Boyertown, Penn., in the 1940s was tranquil, industrious, and a little rugged. This is the home of Pro Tool Industries and the Woodman's Pal, an imposing devise that slashes like a machete, hacks like an axe, digs like a trowel, and, thanks to its sharpened curved sickle hock on the end, extends its cutting reach well above most single-blade machetes.

At 17 inches in overall length and nearly two pounds, the Woodman's Pal is a solidly made tool that has literally stood the test of time, from its service in the foxholes during World War II to countless uses on the farm and in backcountry. Around camp or in the back 40, the Woodman's Pal is indispensable when it comes to removing brush, clearing an area for a fire pit (It's a shovel, too.), or general maintenance on the trail. It cuts brush, vines, briars, and branches larger than you would think it could handle and thanks to the hock, it can do it in both directions. The hock reaches down to

(continued on page 128)



[TOP] At 17 inches, the Woodman's Pal is a formidable and useful tool that has withstood the test of time.

[LEFT] Though the handle is thinly wrapped leather, it still allows for a solid, slip-resistant grip, even in wet weather. The hand guard is large enough to use while wearing gloves.

Reloading 101

AMMUNITION FOR THE TIMES IT MUST BE AVAILABLE

Story and Photography by **James E. House**



A cartridge consists of a primer, powder, case, and bullet.

Reloading metallic cartridges is a useful and economic hobby for an enormous number of shooters. In many instances, reloading is done to save money or to have available ammunition for firearms for which factory ammunition is not available. In others it is done to obtain the greatest accuracy for a particular firearm. In a worst-case scenario, reloading may be the only way to get ammunition for your firearms if you do not have an adequate supply on hand when a desperate situation arises.

This introduction to reloading is intended for shooters who have little experience in that venture, but who want to be able to load when necessary. Consequently, the emphasis will be on using elementary, but adequate, equipment and methods. Loading ammunition is neither difficult nor unsafe if care is taken during the process.

THE METALLIC CARTRIDGE

A metallic cartridge consists of four components: a primer, powder, bullet, and a brass case to contain the other items. The case is, of course, the only component that can be reused, but it is the most expensive part. To load a cartridge, appropriate primers and powders for different types of cartridges must be selected for the particular cartridge being loaded.

CASE PREPARATION

Before a cartridge case can be reloaded, there are some operations to be performed on it. First, the spent primer must be removed and the case be restored to approximate dimensions of an unfired case. These operations are performed simultaneously by a sizing die that contains a punch on the end of a spindle. When the case is forced in the die, which has very accurate internal dimensions appropriate to the caliber, the case is reformed and the punch forces out the spent primer.

Resizing strong brass cases by forcing them into a die requires some type of press be employed. The case is placed in a shell holder that fits the base of the case and moving the press handle forces the case into the die. A lubricant is applied to the case before it is resized to make the operation easier. In order to be able to insert a bullet into the case mouth, the internal diameter of the case neck must be made to correspond to the diameter of the bullet. When the case is forced into the sizing die, the neck is reduced to a smaller diameter than that of the bullet, but as the case is withdrawn, a spindle is pulled out of the case, which expands the neck so it has the correct internal diameter.

In the case of handgun cartridges that do not utilize necked cases, a different procedure is necessary. After the case is restored to the correct external dimensions by the sizing die, a separate die is used to expand the case mouth so a bullet can be seated.



A press is required, but it need not be attached to a bench. This portable stand from The Woodchuck Den makes storage easy.



The Lee hand press will perform loading operations and it is portable.

The expander die contains a punch that has a diameter that corresponds to the caliber of the bullet to be used and it also has a shoulder that flares the case mouth slightly so the bullet can be inserted slightly in the case before it is actually seated to depth.

Cases that are too long cause can cause problems as a result of the neck not being able to expand at the front of the chamber. Therefore, you will need an inexpensive caliper to measure the lengths of both the cases and loaded cartridges. Case trimmers are available, but it is a simple matter to reduce the length of a case by a few thousands of an inch by use of a flat file. Be sure to move the file directly across the case mouth with a motion that is perpendicular to the axis of the case and measure often to make sure that the case is not made too short.

With either the use of a case trimmer or a file, a bead or rough edge of brass is formed on the case mouth. This can be removed with a small tool that has an outside cutting edge on one end and an inside cutter on the

other. The inside rough edge can also be removed with a countersink.

Before a new primer is seated, the residue inside the primer pocket should be removed. As with most reloading operations, a special tool is

available for this purpose, but a small blade screwdriver works well. I have also used a Dremel tool with small wire brush. I like beautiful ammo so I clean the cases before reloading them. Normally, I use a case tumbler to clean



Cases must be lubricated to make resizing easier. Note the decapping pin protruding from the base of the sizing die.



[ABOVE] The expander plug is used to give the correct dimension to a case mouth. Note the small step that slightly bells the case mouth so a bullet can be inserted. [LEFT] Several types of tools are available for seating new primers. A simple model such as this one from Lee Precision works very well.

the outside and an ultrasonic bath to clean the inside. If the cases are dirty, washing with detergent in warm water can help, but be sure they are dry before continuing the loading process. Although I use cleaning equipment, there are other ways to get bright brass. Rubbing the outside of the case with 0000-grade steel wool will produce a nice surface on the case. After that, I use a brass polish known as Mr. Metal. Under desperate conditions, cleaning of cases may be eliminated.

PRIMING THE CASE

The spark plug in a cartridge is the primer that contains a material that explodes when the primer is hit by the firing pin. Primers come in types known as small rifle, small pistol, large rifle and large pistol. Although one would not confuse the sizes of primers, it is imperative to use the correct type. Rifle primers contain more of the explosive material because rifle cartridges normally contain much more powder, which requires more "fire" to ignite the charge. The primer is

seated in the case by means of a punch that pushes it into the primer pocket. Most reloading presses come with a primer arm that is used for this purpose, but small squeeze-type tools operated by hand are also available.

ADDING THE POWDER

Now that a primed case of correct dimensions has been prepared, the next step is to load powder into the case. The correct powder charge must be determined with consultation of standard loading manuals. This is no time to experiment or explore the fringes. After the amount of powder to be used has been determined, a measure is employed to dispense powder by volume or a scale is used to weigh the charge.

In either case, an inexpensive scale should be used to check the charge if it has been dispensed by volume. When I load ammunition, I always insert a bullet in the mouth of the case after adding powder so there will be no possibility of getting two charges in the case. Just recently, I heard of a chap



Trimming cases produces burrs on the inside and outside of the case mouth. A special tool or a counter-sink can be used to remove burrs inside the case mouth.

who blew up his Kimber 45 Auto. Whether it was from multiple charges in a case or using the wrong powder I do not know, but I would wager it was from one of those errors.

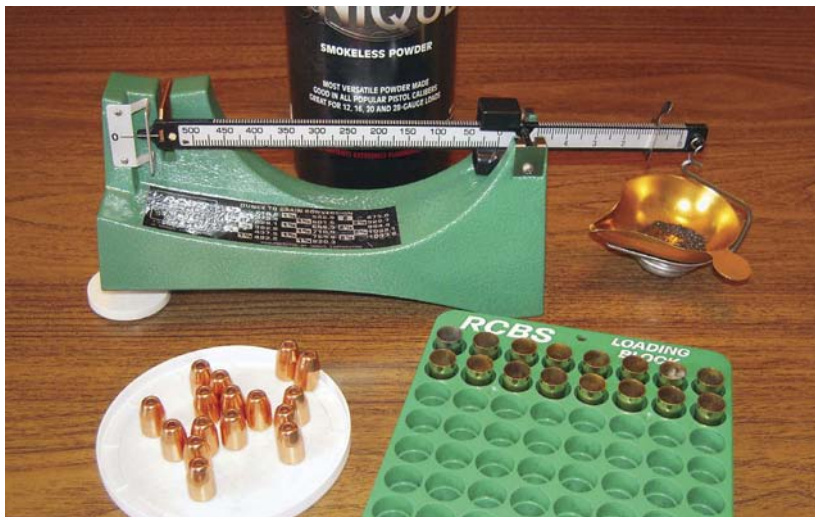
Powders have greatly different burning rates and those utilized in rifle cartridges generally have slower burning rates than those used in handgun ammunition. Unless your loading is always going to be for a single firearm you will probably need more than one type. For use in desperate times, I would select a couple of powders that are useful in several rifle calibers and do the same for handgun loading. For example, loading data can be found for powders such as IMR 3031, Winchester 748, Hodgdon 335, and Alliant Reloder 17 in a wide range of rifle calibers. In a similar way, Alliant Unique, Hodgdon CFE Pistol, Winchester Auto Comp, and Accurate No. 5 are some of the most widely used handgun powders. Whatever type you choose, use the data found in reliable loading manuals.

BULLET SEATING

Having prepared, primed, and charged the cases, the final operation is to seat the bullets. A special seating die is used that not only pushes the bullet into the case, but also crimps it in place is used for this purpose. How-



[ABOVE] Note how the end of the seating punch has a shape that matches that of the bullet to be seated. [RIGHT] Powder charges must be measured accurately, and a mechanical scale such as this RCBS model is portable.



ever, these steps should not be performed at the same time. By adjusting the bullet seating screw, the bullet can be pushed into the case to give the cartridge the desired overall length. Crimping the bullet is done in a separate step.

The bullet is either started in the case mouth manually or else placed on the case mouth. The case is forced into the seating die to insert the bullet in the case. The seating die contains a punch with a recess that should match the shape of the bullet being seated. In this way, the bullet is not deformed as it is pushed into the case. To seat the bullet, the die should be screwed into the press only partway. As the press handle is operated, the bullet seating screw makes contact with the nose of the bullet to push it into the case, but the crimping shoulder inside the die does not make contact with the case. After the bullet has been inserted in the case, the desired distance, the seating punch is backed out of the die and the die screwed into the press a sufficient distance so that operating the press forces the case mouth against the crimping shoulder in the die. This produces the finishing roll crimp on the case mouth. A taper crimp is used for straight-walled cases used in auto-loading handguns, but the processes are the same.

Reloading ammunition can be carried out with a minimum of equipment, but the finished products perform just as well as the factory products. Moreover, reloading may be the only way to obtain ammunition when you need it most. **ASG**



All the equipment necessary can be stored and transported in a toolbox of medium size.

Gear Guide

AMMUNITION RELOADING



Quick Load

Great Equipment for Reloading Ammunition | Story by William Taylor

AS THE PRICES GET HIGHER and the regulations on ammunition become more stringent, the incentive to collect brass and reload your own ammunition becomes stronger. When you buy loaded ammunition at a store, part of what you are paying for is the bullet, the powder, and primer, and the rest of that cost is the brass used in the case. Reloading allows anyone to reuse that brass case, thereby saving you money on buying new brass. And almost all brass ammunition is capable of being reloaded. Leaving brass on the ground at the range is just wasteful, and who can afford that?

The procedure of reloading is very simple. A cartridge has a primer at its rear, powder in the middle, and a bullet at the front. When you fire the cartridge, the primer goes off, the powder burns up, and the bullet fires out of the muzzle. Reloading amounts to nothing more than putting in a new primer, new powder, and a new bullet into an old brass case. To accomplish this, there is a host of equipment necessary and many companies available that offer quality gear for reasonable prices.

Breech Lock Challenger Press

Lee Precision offers this Breech Lock Challenger Press kit, which includes the new Breech Lock Challenger Press and one Breech Lock quick-change bushing. Also included is a complete powder handling system with a convenient and repeatable Perfect Powder Measurer, plus the Lee Safety Scale, a very sensitive and safe powder scale, and the Powder Funnel. Case preparation tools include the Lee Value Trim case trimmer to trim on your reloading press and a cutter and lock stud to trim your cases by hand. An included chamfer tool chamfers the inside and outside of the case mouth and a tube of premium sizing lube is included. A small and large primer pocket-cleaning tool completes the case preparation package. With the included large and small Safety Prime, with push-button convenience, you will never have to touch the primer.



Source: LeePrecision.com
MSRP: \$186.00

Perfect Powder Measurer

Lee Precision's Perfect Powder measurer eliminates cut powder and reduces the jerky action and drum binding over other designs. The micrometer adjuster reads directly in cubic centimeters and the o-ring positively locks the adjustment and removes any end play. The Perfect Powder Measure throws charges from two grains to more than 100 grains. To change out powder, all a reloader has to do is rotate the hopper a quarter turn to shut off powder flow and lift off the hopper. The Perfect Powder Measure also has an integral powder baffle and comes with a tapered drop tube to prevent powder bridging.



Source: LeePrecision.com
MSRP: \$30.98

12-Gauge Shotshell Reloading Press

Capable of reloading 200 shells per hour, the Lee Load-All II's hopper holds over 5 pounds of shot, enough to load 125 rounds. It has a built-in primer catcher with an easy-to-empty door right up front. The recesses at each station allow for quick shell positioning, while the optional primer feeder means you never need to touch the primer from the box to the shell. The unit is adjustable, from the standard 2 3/4-inch shell, up to a 3-inch shell, available in 12, 16 and 20 gauge. Twenty-four shot and powder bushings are included.



Source: LeePrecision.com
MSRP: \$75.98

AMMUNITION RELOADING



Quick-N-EZ Case Tumbler

The Frankford Arsenal Quick-N-EZ Case Tumbler has a unique bowl design that increases brass agitation for fast, aggressive cleaning that reduces wear on reloading dies and extends brass life. A clear lid lets the user monitor the tumbling action, while a cord-mounted on/off switch provides safety and convenience. At the center of it all, the powerful motor is solid and reliable. The bowl has a capacity of 600 9mm cases or 360 .223 Remington cases.

Source: FrankfordArsenal.com

MSRP: \$59.99

Reloading Scale

The DS-750 from Frankford Arsenal is a great scale for budget-minded reloaders. It delivers extreme accuracy for precise measurements of bullets, cases, powder, and even loaded ammunition. Achieving maximum accuracy potential of handloads is easy with this scale, and it even incorporates a plastic covering to protect the sensitive electronics during storage and transport. It has a capacity of 750 grains, and displays measurements in grains, grams, carats, or ounces, accurate within 1/10 of a grain. The unit comes with batteries, calibration weights, powder pan, and a carry pouch. It features auto calibration, tare function, and a counting function, all displayed on an LCD screen with a blue backlight.



Source: FrankfordArsenal.com

MSRP: \$39.99



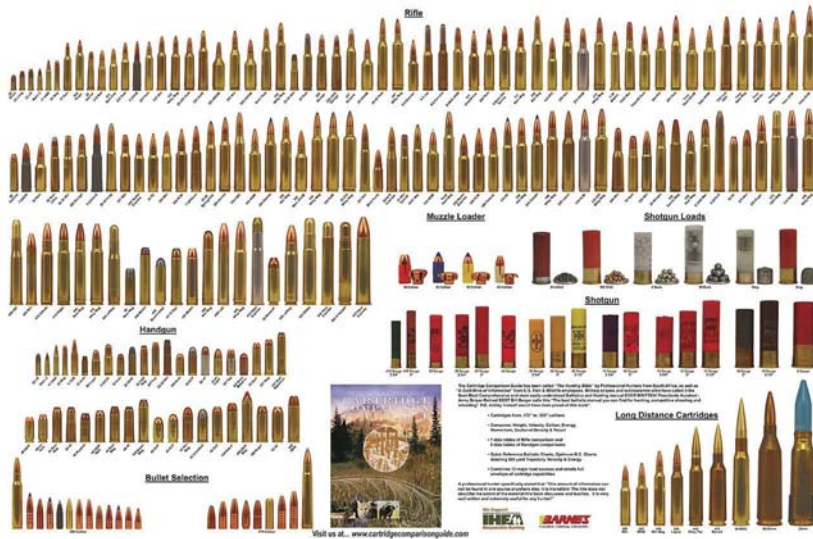
Counter Mat

The Hornady Reloading Counter Mat is a great reference tool for your reloading bench. This non-skid bullet mat features the entire line of Hornady bullets with corresponding caliber, diameter, weight, ballistic coefficient, sectional density and Hornady's item number. The Counter Mat also doubles as a cleaning and maintenance mat, protecting your workbench from solvents and oils. The slick plastic finish on the mat will not absorb solvents and oils and cleans up quickly. It is 17 x 26 inches and features Hornady's full line of projectile products. The back is neoprene.

Source: Hornady.com

MSRP: \$39.99





Bullet Poster

The American Standard bullet poster is full color and spans 36 by 24 inches. The images on the poster are all actual size (within 4/1000 of an inch), and it includes all American Standardized cartridges (rifle, handgun, and shotgun), available January 2012, military surplus, and a few bonus cartridges as well. The poster displays 165 unique rifle cartridges (from the 17 caliber Mach 2 and 22 LR up through the 505 Gibbs and 577 Nitro), 55 handgun cartridges (from the 17 HMR and 22 LR to the 500 S&W including the 5.7x28 and the 44-40, 38-40, and the 357 Maximum, 445 Super Mag, and the 45 Win Mag), and nine different shotgun gauges (410 and 32 gauge up to the 8 gauge).

Source:

www.CartridgeComparisonGuide.com

MSRP: \$15.95

E-Zee Case Gauge

Lyman Products' improved version of its E-Zee Case Gauge (both sides shown) measures the case length of more than 70 popular rifle and pistol cases. Many new specialty cartridges are included, like the Winchester Short Mags, 204 Ruger, 500 S&W and others. Precisely made, this rugged metal gauge makes sorting cases quick, easy, and accurate.

Source: LymanProducts.com

MSRP: \$22.50

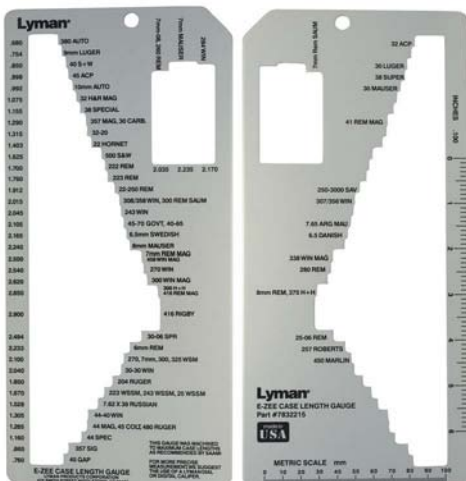


Crusher Deluxe Expert Kit

Lyman Product's popular Expert Kit has always been the one kit with a complete selection of top quality equipment. Now the Deluxe Expert Kit is the first to offer a digital scale, as part of a selection of the best reloading tools in one package. Just add components and start loading your ammunition. For powder handling, no other kit combines both a new digital scale and Lyman's powder measurer. In addition, the kit includes a universal case trimmer with nine pilots. To complete the kit, all the accessories needed to add speed and versatility are included, as is Lyman's all-new 49th Edition Reloading Handbook.

Source: LymanProducts.com

MSRP: \$549.95





Pro 1000 Scale

Pro 1000 scale offers precision accuracy on a high-impact styrene base. It can measure up to 1,000 grains and is accurate to 1/10 of a grain. It features extra large leveling wheel, dual agate bearings, and a large dampener. The scale zeros in seconds.

Source: LymanProducts.com
MSRP: \$89.95

Reloading Scale

Need up to 1,010-grain capacity with +/- 0.1-grain sensitivity? Reloaders get it with the RCBS 10-10 scale. Its approach to weight-system speeds reloading and helps reloaders avoid overloads. A micrometer poise allows easy adjustment at any setting from 0.1 to 10 grains. Other features include magnetic dampening, a non-stick/non-spill aluminum pan, self-aligning agate bearings, hardened steel pivot knives and a tough plastic cover.

Source: RCBS.com
MSRP: \$198.95



Lock-N-Load Classic

The Hornady Lock-N-Load Classic Reloading Kit comes with everything you need to turn out high-quality, accurate handloads. The kit includes a single-stage press, powder measurer, electronic scale, die bushings, primer catcher, a priming system, hand-held priming tool, a universal reloading block, a chamfering and deburring tool, and a primer turning plate. The *Hornady Handbook of Cartridge Reloading* is especially valuable, with hundreds of rifle and pistol loads for every shooting application. The system lets you switch dies to a new caliber and begin reloading again in seconds. The automatic priming is hands-off and trouble-free, while the angled frame gives you easier access to your cartridges. The bushings let you adjust your dies once, then lock the setting into place for consistent reloads. With this system, one press can handle multiple calibers.

Source: Hornady.com
MSRP: \$ 383.06





Case Cleaner

RCBS's Ultrasonic Case Cleaner is a 3.2-quart stainless steel tank that holds a large volume of brass cases, can rapidly remove tarnish, carbon buildup, and metal oxides. Use the keypad and display to select one of five preset temperature settings and set the timer from 1 to 30 minutes to match the case-cleaning needs. It features a 60-watt transducer, 100-watt ceramic heater, 36 kHz ultrasonic frequency, and a sensor that indicates when to change out the solution. The cleaner has a degas function, plastic basket, and convenient drain valve and tube.

Source: RCBS.com

MSRP: \$179.95

Sonic Cleaner

Hornady Manufacturing now offers its new Lock-N-Load Sonic Cleaner. A combination of intense ultrasonic cleaning action and a unique cleaning solution, One Shot Sonic Clean, provide an effective and efficient method to remove carbon residue and other foreign materials from the entire case. Unlike tumblers, this sonic cleaner quickly cleans the inside of the case, as well as primer pockets. The ultrasonic action creates microjets that blast carbon buildup off cases, small gun parts and equipment. The Lock-N-Load Sonic Cleaner can hold up to 200 .223 cases or 100 .308 cases.

Source: Hornady.com

MSRP: \$ 136.17



Shell Trays

Frankford Arsenal Perfect-Fit Trays are sized for individual calibers or a family of calibers for a precise fit. Perfect-Fit trays are an essential tool organization. Twelve tray sizes are available for 25 ACP through 500 Nitro. Each tray holds 50 cases (tray number 9 holds 45). A lip around the outside edge provides a sure grip on the tray.

Source: FrankfordArsenal.com

MSRP: \$7.99

The Gray Man

HOW TO DISAPPEAR IN PLAIN SIGHT

Story by **Ryan Lee Price** | Photography by Henry Z. DeKuyper

ON AN UNUSUALLY COLD AUTUMN DAY, WITH THE SUN BARELY ABLE TO BREACH A LOW BANK OF CLOUDS THAT SEEMED TO HUG THE SKYSCRAPERS DOWNTOWN, THERE WAS AN UNEXPECTED STRANGENESS IN THE AIR, A DETACHED APPREHENSION. PERHAPS IT WAS JUST PART OF YOUR MISSION OR MAYBE THE UNSETTLING WAY THINGS WERE LEFT BETWEEN YOU AND YOUR FELLOW OPERATORS AT THE MORNING'S BRIEFING, BUT AN UNEASY ANXIETY CLUTTERED YOUR THOUGHTS.

Walking downtown toward the jewelry district to meet your contact, you sensed a disturbance in the general flow of the foot traffic around you. It was as if something was amiss, but you couldn't quite put your finger on it. Nerves? Tension? Stress? These have all been a familiar part of your routine in the months leading up to today's operation, and you've gone over these plans, over these very sidewalks, countless times in preparation. Why these feelings today? Your gait was steady, smoothly following the patterns of the people around you. Something was very wrong.

Stopping at a gold retailer at the edge of the district, you feigned interest in something in the window; instead, your eyes strain left and right to spot something, anything, out of the ordinary. A woman on the corner, checking her phone. A man in a business suit, waiting for the bus. A homeless guy rooting through the trashcan. Nothing sticks out. Then you see him. Dark glasses, blue light jacket, tan slacks. You saw him three blocks back, crossing the street. He stopped when you stopped. You're being followed. By whom? Why? Double cross.





Abort the mission. Forget the plans. Three months of diplomacies and intricate procedures taught, learned, memorized, down the drain. Yes, abort and extract. Lose the tail, meet at the safe house and find out who the mole is. The first instinct is to keep moving and move quickly. Escape the situation as fast as possible; whoever he is, the bulge under his left arm says he isn't here to make friends. But instead, slow down, act natural.

Initiate the Gray Man.

A snap right turn into the parking structure on Olive Street. It's crowded with morning traffic as the business day has just begun. Through the structure and out onto Mercury Court on the east side. A quick glance tells you he's still back there, keeping pace and keeping his distance. He stalls at the exit on Mercury Court, as you turn right down the alley between a Thai food place and the LA Diamond Factory. You pick up the stride, darting through merchants and shoppers, barely clipping the shoulder of older man as you bound onto Hill Street. It's Wednesday. Your destination is Pershing Square on the next block north, a large brick-paved park that plays host to a Farmer's Market, teeming with people. It'll be perfect, a nice crowded place to become the Gray Man.

GONE IN PLAIN SIGHT

The Gray Man is invisible in plain sight. He is right in front of you, but nowhere to be seen. He is acutely aware of his environment, of the people, the places, and the activities that surround him, but appears just enough on the outside to never be included. He is polite, soft spoken, respectful, and humble. He never calls attention to himself, never points out, by action, dress, voice, or mannerisms that he is there. There will never be an introduction, a confrontation, or even a casual exchange of small talk. People walk by him, see him, maybe even acknowledge him, but never remember him. He looks like anyone, acts like everyone, but reminds them of no one.

THE SCIENCE

Most of society has tunnel vision. The mind remembers whatever stimulates it. The brain contains a filter that sifts through all the sensory input received from eyes, ears, and touch. Called the Reticular Activating System (RAS), it scans that input and determines what parts to filter out, ignore, and what parts to pay attention to; specifically, what parts to notice.

This allows the brain to conserve energy by not having to process all the visual data all at

The Gray Man

once all the time. Thanks to hundreds of thousands of years of evolution, the brain will first look for threats. Is something coming at you quickly? Do your eyes see a threatening stance, posture, or face? It looks for bright colors, human and animal shapes, bright lights, movement and other things that stimulate the brain. It usually ignores areas of continuous color, shadow, dull, natural colors, slow movement and off-vector movement. This is why zebras have stripes and leopards have spots, to blend in with their environment. Imagine how easy it would be for a lion to single out a purple zebra.

Your brain is very adept at ignoring the usual and perking up to the unusual. It can ignore the sound of ceiling fan or the refrigerator running while you're sleeping, but you will bolt upright in a fraction of a second of hearing glass breaking or the screeching of tires on your street. That's your RAS at work, and it is always working to keep you safe and aware of your environment.

Become the Gray Man and disappear in plain sight by not tripping the triggers that activate the RAS. Don't be a purple zebra in a black and white herd. If you do not create a stimulus—color, sounds, threats, movements—that the predator can key in on, you become invisible to him. The perfect Gray Man is ordinary in almost every respect. There should be no physical feature that people will notice. Obese, tall, fancily dressed, a big nose, bald head, an epic beard, or an unusual hat or pair of shoes are all things that stick out in people's minds when they look at you. You don't want to be remembered at all, and there are ways of doing it.

CLOTHING

According to an article by Kevin Reeve, founder of OnPoint Tactical, an urban survival school: "The standard uniform for military's civilian wear consist of tactical pants (referred to by some of my friends as "shoot me first pants"), a khaki cotton button-down shirt with epaulettes, Oakley shades, desert combat boots, and a shaved head. Add to that a nice MOLLE backpack, and you have target drawn on you. No one doubts that you have some very cool gear in that pack and they will want it."

Clothing is a signal to others as to what you represent in life; wear a chef's hat and people will assume you are a chef, but wear a non-descript baseball cap and normal, everyday sun-

"IF YOU DO NOT
CREATE A
STIMULUS—COLOR,
SOUNDS, THREATS,
MOVEMENTS—THAT
THE PREDATOR
CAN KEY IN ON,
YOU BECOME
INVISIBLE TO HIM."

glasses, and you're a regular person who doesn't fare well in sunshine. You not only want to avoid detection by those that might be after you, but you also want to avoid anyone remembering you by calling attention to any specific detail. (Agents against you will ask questions, maybe show a picture of you ... you don't want to stand out in anyone's memory.) Overly political statements, sports teams affiliation, or brand association logos are to be avoided. Wear clothes that lack logos, sports teams names, or even colorful markings. Earth tones are always a logical choice in urban camouflage. Avoid bright colors or fad-dish styles. An earth tone or gray t-shirt with no brand markings is always a good choice. Keep it as simple as possible by skipping pins or pockets, stripes or patterns. If the weather calls for it, always wear a jacket. Not only will it not stand out (everyone notices the poor fool in the rain without a coat), but a lot of gear can be concealed under a jacket.

Your pants should be non-designer blue jeans or nondescript khaki casual pants, depending on your environment. Avoid expensive pants or fashion standouts, and avoid any kind of pants that are advertised as "tactical" or "operator," as they will no doubt have a military aura about them, with cargo and/or zippered pockets. If it's hot, wear shorts, as you will most definitely not blend in if it is 100-plus degrees and you are in jeans and a jacket.

Comfortable shoes are a must, especially if you plan on walking any distance. Drab athletic shoes that match the theme of your chosen outfit are most appropriate, although quality leather loafers with rubber soles can be paired with jeans as well as khaki pants. The important thing to note is to not call attention to them.

MANNERISMS

The mannerisms of the Gray Man are subtle, quiet, and reserved. Walk the same pace as the surrounding crowds, notice the things they notice, and react in the same way they would react. Blend into the group by enacting the herd mentality, even if the very things that are causing a disruption are your fault. Become one with the group. If forced to interact with people, do so briefly and quietly, but most importantly, politely without giving the other person a cause for concern. Avoid eye contact with people in the crowd. It has been concluded in studies that

people tend to better remember a face if they were able to see the eyes.

While blending in, avoid any sweeping gestures, and displays of emotion or energy. The Gray Man is withdrawn and reticent, discrete in his movements to the point that he is camouflaged by those around him, an ability that will differ depending on the neighborhood in which he is hiding.

Reeve refers to this as the “baseline.” It refers to the sound, motion, and activity level of the neighborhood in a normal situation. The speed at which people move, the way they gesture, the volume and speed with which they speak. He writes, “The element of matching the baseline is probably the single most important element of personal camouflage. Learning to walk like the natives walk will hide you better than just about anything else.”

EQUIPMENT

As the Gray Man, the equipment you'll want with you depends greatly on your situation, where you are heading and what you are hiding from. Something as simple as a cell phone with a choice number of apps that can be found in any Average Joe's possession (GPS, compass, flashlight, et al.) might be all you need to stay out of sight.

Consider a series of clandestine pieces of equipment that can help you out of any number of scrapes. For example, handcuff keys sewn into the hem of your shirt, or one attached to the zipper pull of your jacket (See page 110). However, when push comes to shove, you don't want to be the only one in a gunfight without a gun, but carrying one under your jacket can be easily spotted, and carrying long arms in traditional cases will only attract the wrong kind of attention. Several companies produce diversion bags that look like everyday bags or common items similar to the one on page 68.

The Gray Man is the person who moves around the periphery of our awareness without calling attention to himself, and without causing a blip on anyone's radar. Disappearing by blending in makes that person invisible for all practical purposes. He is neither here nor there, with us or against us, neither black nor white. He is the Gray Man. **ASB**



OFF THE MAP

How To Vanish Without A Trace

Sometimes something happens in a person's life, sometimes by no fault of their own, where they've realized that in order to survive another day, they must completely disappear, not by slipping under the radar, but by completely falling off the map. The Feds use the Witness Protection Program when they want to secure the safety of threatened people, but sometimes, what you may have witnessed can't be held accountable in court. It is time to leave your house, close the door behind you and never look back.

First, take into consideration the legal ramifications of what you are planning. If you are running from debts or from illegal action, you will go to prison for considerably longer if they catch you. Becoming a fugitive shouldn't be part of your plan. Frank M. Ahearn, author of *How to Disappear*, writes: “You don't successfully vanish by staging an elaborate disappearing act that ultimately involves a tri-state search, police dogs, and your home town believing that you were mauled by a bear and dragged off into the dark night.” He stresses the importance of disappearing in a legal fashion.

Start by understanding that you are now alone, and if you involve another person, you will surely fail. Benjamin Franklin said it best: “Three can keep a secret as long as two of them are dead.” Also, understand what you are hiding from. If it's family members, how resourceful are they? How much will they care? If it is the government, remember that they have decades of experience and unlimited resources to track you down.

Get rid of possessions: Destroy pictures of you. Abandon your car in a way and place that it will likely be stolen. Leave behind all mementos and personal possessions (jewelry, good luck charms or a favorite key chain).

Unplug: Stop using the Internet, completely. Cancel all social media accounts and sever all online connections to your name and the electronic world, including credit cards, online banking, and even an ATM card. You're in a cash-only world from now on.

Lie: Create a false persona for anyone you may meet. Build a believable backstory that is convincing enough without being too dramatic. But stick to one fake identity; having several will be confusing, and people may get suspicious. As you prepare to disappear, slowly but surely start fudging the information companies have on you. “Correct” the spelling of your name on file with the local utility company, tell them they have the wrong social security number and offer a correction, change your mailing address for your bills to a fake mail drop you set up through a private mailing company. If people come looking for you, you want them to waste their time looking in the wrong places.

Leave town: Don't just throw all of your stuff in a suitcase and jump on the next bus out of town. Plan. Find a place domestically (no credit card means you won't be able to fly anywhere) that nobody will know you, a place you've never been before, and a place large enough to easily absorb you without anyone noticing (i.e., no small towns where everyone knows everyone else except you, the new stranger in town).

Become a new you: Ditch your old habits for new ones, old hobbies for new ones, and even old ways of looking and dressing for new ones. Be the opposite of who you were: If you always wore Hawaiian shirts and flip-flops, now only wear suits and ties. If you're a blond, dye your hair brown. Lose weight or gain weight. Get a tan or stay out of the sun.

Disappearing is not easy. You don't just fake your own death, says Ahearn, “buy some false papers in an alley from a guy with an indiscernible accent, and then retire to a life of leisure on a small island nation. Disappearing, and doing so legally and without incurring a bigger headache than the one you're running away from, takes careful planning.”

You need to be willing to cut contact with everyone you know, change how you shop, and even how you live your life. Disappearing means beginning a game of chase with people who want to find you and being willing and strong enough to outplay them at that game. If you can't do that, you'll waste a lot of time and money trying to disappear but failing.

Gear Guide

POCKETKNIVES

Dirty Dozen

12 Knives To Fill Your Empty Pockets

Story and Photography by Ryan Lee Price

THERE'S SOMETHING TO BE SAID about a well-built pocketknife, a small folding blade usually with a simple and unadorned handle, a sharp, stout blade, and a robust pivot point. It's not as showy as a fixed-blade knife one straps on their hip, nor is it as precious and expensive as a knife one would keep in a wooden box in their curio cabinet. Pocketknives are utilitarian, useful, expendable, and practical. They're small enough to slip unnoticed deep into one's pocket but easily accessible and quick to the task.

Not only does a pocketknife speak volumes about the owner—does he have well-practiced backcountry abilities or do all of the letters on his desk get opened neatly—it immediately harkens back to faded memories of fathers and sons on fishing trips and sentimental moments of young boys and girls learning how to use a knife for the first time: gleaming chrome, nickel, or brass fittings, shiny blades glinting in the sun, and that comfortable weight of responsibility in their hands.

You might think that what goes into a pocketknife is different than the artistry and craftsmanship that goes into constructing a collector's knife or a high-end, single-purpose knife like a Skinner or a survival knife. However, the materials used to make



pocketknives have evolved from the shoddy, cheap metals to high-quality alloys and sophisticated textiles incorporated into the handles, and the computer-aided designs take into consideration a wealth of new information, from the ergonomics of the hand to complex locking devices and safety needs.

When looking to buy a pocketknife, go beyond the utilitarian ideals associated with pocketknives and ask yourself why you might need or want one. If you are looking for something to open letters with, save yourself the trouble and dig around in the kitchen for a butter knife. If you need something to clean underneath your fingernails, try a set of nail clippers instead. Unjustly, pocketknives have had an aura of cheapness that no longer applies to the genre; they're well made and have been the subject of a ground swelling of respect. Most of the knives represented here have a fixed-blade counterpart, making the structure, materials, and design the same as the fixed-blade

version, except that they fold up instead of utilizing a sheath.

Look for a pocketknife that is rugged and will withstand more abuse than would a fixed-blade knife, as it will invariably fall out of your pocket or be dropped on the ground at some point and should hold up to the wear. The pivot point should be well machined and affixed, allowing the blade to unfold and fold smoothly and easily. They should have a blade lock so it won't fold up on your knuckles while in use, and the handles should be textured enough to make the grip comfortable and non-slip. Most of all, the knife will represent you as a person; old, hardly used, scratched, dull, dirty, sharp, clean, or broken, a pocketknife is an extension of its owner.

On these pages are 12 such knives that represent a cross section of the pocketknives currently on the market. They all have similar features and functions—with some exceptions—but they vary in price and quality (two things not always related).



Puma Vintage 3530

Founded in 1769, the first rule of the Puma Knife Company, which is still true today, is that it uses quality materials in all of its knives. This knife offers flip action and a sturdy pocket clip. The 3.5-inch drop-point blade is made with 440a stainless steel, and the handle is red pakkawood (a hardwood veneer mixed with strong resins) with a “scales” texture for a comfortable grip. The blade locks into place and the finger grooves allow for a steady hold, while the flip mechanism doubles as a finger guard.

SPECIFICATIONS:

Total Length: 7.9 inches

Blade Length: 3.5 inches

Closed Length: 4.5 inches

Weight: 4.2 ounces

Pocket Clip: Yes

Blade Steel: 440a stainless

Blade Thickness: 0.12 inches

Blade Hardness: 55-57

Handle: Pakkawood

Contact: PumaKnifeCompanyUSA.com

MSRP: \$28.95



Gatco D2 Simba Skinner

The Great American Tool Company (Gatco for short) was started in 1989 in Buffalo, New York. The founders wanted to provide high-quality knives and sharpeners. Tim Wegner designed this folding pocketknife. It features a 3.5-inch blade made from D-2 steel for great edge retention and the 60-61 Rockwell hardness means that it will withstand a great deal of work. The dual-layer handle with 420-J2 recessed liners in the shape of lion's paws makes for a thinner profile. The pocket clip is stainless steel with matte finish and is moveable for tip up/tip down carry and left/right hand use. The blade has two thumb ramps for detailed knife work and the slide locking mechanism is smooth and easy to use. The butt-end has a hole for a lanyard.

SPECIFICATIONS:

Total Length: 8.1 inches

Blade Length: 3.4 inches

Closed Length: 4.7 inches

Weight: 4.7 ounces

Pocket Clip: Yes

Blade Steel: D-2 steel

Blade Thickness: 0.12 inches

Blade Hardness: 60-61

Handle: Dual-layer G-10

Contact: GatcoSharpeners.com

MSRP: \$79.99





Case Slimline Trapper

This elegant-looking knife's blade features the traditional steel that Case uses for all of its knives, chrome vanadium. The Slimline Trapper is a family of eight knives with different handle material and textures; this one is dark red bone, which sets off the chrome bolster end pieces nicely. This is one of its most popular pocketknives. It features no pocket clip nor does the blade lock, but instead, it carries with it a refinement unlike the rest. It is a gentleman's pocketknife.

SPECIFICATIONS:

Total Length: 7.3 inches

Blade Length: 3.0 inches

Closed Length: 4.12 inches

Weight: 2.4 ounces

Pocket Clip: No

Blade Steel: Chrome vanadium

Blade Thickness: 0.10 inches

Blade Hardness: n/a

Handle: Dark red bone

Contact: WRCASE.com

MSRP: \$36.95

Gatco Timberline Tactical SOC

This is a strong and simple knife designed for everyday carry. It was designed by the Great American Tool Company as a tribute to the American Tradesman. The 440 stainless steel provides a sharp blade that is easily kept so. Ambidextrous thumb studs on both sides of the blade, combined with a Teflon spacer pivot system makes for a smooth "one-hand open, one-hand close" operation. The pocket clip is reversible. The blade features 1 inch of serration, and the locking mechanism is textured to keep thumbs from slipping. The tan handle is a G10 composite material (Fiberglass and epoxy) with a slightly ribbed texture for a comfortable grip, and the blade is anodized with a matching camo finish.

SPECIFICATIONS:

Total Length: 7.75 inches

Blade Length: 3.25 inches

Closed Length: 4.5 inches

Weight: 4.8 ounces

Pocket Clip: Yes

Blade Steel: 440 stainless

Blade Thickness: 0.12 inches

Blade Hardness: 55-56

Handle: G10 Composite

Contact: GatcoSharpeners.com

MSRP: \$40



CRKT Graphite Folding Knife

If Terminator were to own a knife, it would be this one. Built by Klecker Knives, this "skeletal" knife has a modified drop-point blade (serrations is an option), double thumb studs so it can be opened with both hands with the help of the flip point. At 3.06 inches, the blade is stout in comparison to the others, but wider and made with 8Cr13MoV stainless steel (similar to 440B but with more carbon). With finger grips, the handle is comfortable and comes with a lanyard hole at the butt end. It is made of G10 composite overlaying a 2CR13 stainless steel frame. The locking blade is released with a design similar to Kleeke-style knives.

SPECIFICATIONS:

Total Length: 7.5 inches

Blade Length: 3.06 inches

Closed Length: 4.44 inches

Weight: 4.4 ounces

Pocket Clip: Yes

Blade Steel: 8Cr13MoV

Blade Thickness: 0.14 inches

Blade Hardness: 58-60

Handle: 2CR13 Stainless Steel with G10 overlay

Contact: CRKT.com

MSRP: \$69



Bear and Son Cutlery Camouflage Aluminum Sideliner

This is one of two new camo Sideliners (Model 9112) offered by Bear and Son (the other, 9112G has a guthook for field dressing). The blade is made of 440 high-carbon stainless steel and features a quick-opening thumbhole so it can be opened with one hand. The blade has a slightly modified clip-point, and the locking mechanism is smooth and easy to use. The handles are high-quality T6 aircraft aluminum with a slip-resistant camouflage coating. The satin-finished metal pocket clip provides quick, easy access.

SPECIFICATIONS:

Total Length: 7.75 inches

Blade Length: 4 3/8 inches

Closed Length: 4.375 inches

Weight: 3.3 ounces

Pocket Clip: Yes

Blade Steel: 440 stainless

Blade Thickness: 0.12 inches

Blade Hardness: n/a

Handle: T6 Aluminum

Contact: BearAndSonCutlery.com

MSRP: \$69.99



Klecker NT-03 Cordovan

The detailed and uniquely stylish Klecker NT-03 Cordovan has a 3.63-inch drop-point blade made from 12C27 stainless steel, making it a rugged folding knife equipped with the unique Klecker lock mechanism. The one-hand-open flip point acts as a finger guard when open. The handles are a combination of matte-finished stainless steel and layered brownish-red G10 composite insets, all held together with polished brass accents and a reversible pocket clip.

SPECIFICATIONS:

Total Length: 8.56 inches
Blade Length: 3.63 inches
Closed Length: 4.89 inches
Weight: 5.8 ounces
Pocket Clip: Yes
Blade Steel: 12C27 Stainless
Blade Thickness: 0.111 inches
Blade Hardness: n/a
Handle: G10 composite/stainless steel
Contact: KleckerKnives.com
MSRP: \$115



Leatherman Crater C33TX

What we'd expect from Leatherman is a pocketknife that blurs the lines between knife and multitool, as the C33TX comes with a couple of screwdrivers and a retracting keyhole for a lanyard. The blade is made from 420HC steel and is a combo straight blade and serrated. The black handle is made with a glass-filled nylon, allowing for durability without adding much weight (as it lacks an inner steel frame). It is a simple and straightforward folding knife with a couple of much appreciated additions.

SPECIFICATIONS:

Total Length: 6.5 inches
Blade Length: 2.6 inches
Closed Length: 3.87 inches
Weight: 2.36 ounces
Pocket Clip: Yes
Blade Steel: 420HC stainless steel
Blade Thickness: 0.10 inches
Blade Hardness: n/a
Handle: Glass-filled nylon
Contact: Leatherman.com
MSRP: \$54.66



Jantz SS3523 High-Tech Folder

Because this knife is offered with three choices of handle materials (this one is red linen micarta), some assembly is required (you'll need a #T6 and #T10 Torx wrench to do the job). The embossed checkered bolsters near the blade give a little bit of charm to this "working man's" knife, and the five holes between the bolsters and the handles add a little extra flare. With thumb studs on both sides, the knife can be opened with either hand, though the pocket clip can only be placed on the right side. Serrated thumb ramps offer a bit of stability when doing small jobs, and the red micarta handles go well with the stainless motif of the knife.

SPECIFICATIONS:

Total Length: 7.75 inches
Blade Length: 4.625 inches
Closed Length: 3.12 inches
Weight: n/a
Pocket Clip: Yes
Blade Steel: n/a
Blade Thickness: 0.086 inches
Blade Hardness: n/a
Handle: Linen micarta
Contact: KnifeMaking.com
MSRP: \$24.95



Hogue Ex-04

Introduced in 2012, the EX-04 is the next step in Hogue's Extreme Series. Like the EX-01 and EX-03, it features a button lock with manual safety (to keep it locked) and integrated stainless steel bolster plates. The EX-04 is designed with an ergonomic G-Mascus G10 composite in four colors (blue—shown, red, black, and gray), which makes the knife very beautiful. The design of the handle is comfortable in both saber and ice-pick grips. The upswept blade as a dual grind that makes for a sharp edge, and the 154CM stainless steel was developed by Bob Loveless in 1972 to be used for high-end knives. The double thumb studs are for easy opening, and the pocket clip is mounted high so the knife sits deep in the pocket.

SPECIFICATIONS:

Total Length: 8.0 inches
Blade Length: 3.5 inches
Closed Length: 4.625 inches
Weight: 4.48 ounces
Pocket Clip: Yes
Blade Steel: 145CM stainless steel
Blade Thickness: 0.15 inches
Blade Hardness: 57-59
Handle: G10 Composite
Contact: HogueKnives.com
MSRP: \$239.95



Buck 845 Vantage Force

The Vantage Force knife by Buck Knives has a quick and smooth opening with a blade flipper that doubles as a finger guard when opened. Using an oversized liner lock and stainless steel frame, it is a very strong and durable knife. The all-black body, the 420HC stainless steel blade (oxide coating), and pocket clip lend itself to the overall sinister appearance of this knife. This blade is full bellied with a strong, thick point for heavier tasks. It can also be used as a general work knife. The top of the blade drops down toward the tip, which minimizes accidental puncturing while skinning. The drop point blade is strong and very versatile. The small jimping on the spine of the blade and the thumbhole used for opening are added features. Larger and heavier than previous versions in the Vantage series, the fit and finish is solid, as is the glass-reinforced nylon handles.

SPECIFICATIONS:

Total Length: 7.6 inches

Blade Length: 3.25 inches

Closed Length: 4.325 inches

Weight: 4.3 ounces

Pocket Clip: Yes

Blade Steel: 420HC stainless steel

Blade Thickness: 0.120 inches

Blade Hardness: 58

Handle: Glass-reinforced nylon

Contact: BuckKnives.com

MSRP: \$65



Gatco Timberline Everyday Workhorse

Designed for everyday use and general ruggedness, these two knives differ in their blades. The 4301 is a plain-edged blade, while the 4302 is a combo with serrations. The all-black configuration of each knife. The 440 stainless steel provides a sharp blade that is easily sharpened. Ambidextrous thumb studs on both sides of the blade, combined with a Teflon spacer pivot system makes for a smooth "one-hand open, one-hand close" operation. The pocket clip is reversible. The combo blade features one inch of serration, and the locking mechanism is jimped to keep thumbs from slipping. The black handle is a G10 composite material with a slightly ribbed texture for a comfortable grip, and the blade is finished in titanium nitrate.

SPECIFICATIONS:

Total Length: 7.75 inches

Blade Length: 3.25 inches

Closed Length: 4.5 inches

Weight: 4.8 ounces

Pocket Clip: Yes

Blade Steel: 440 stainless steel

Blade Thickness: 0.12 inches

Blade Hardness: 55-56

Handle: G10 Composite

Contact: GatcoSharpeners.com

MSRP: \$40 **ASG**



JANTZ

knifemaking.com



Pattern 41 Blades

Overall Length: 7 5/8", Blade Length: 3", Width: 1", Thickness: 1/8"

CAT.#	STEEL	FINISH	PRICE
J4198	1095	Satin	24.95
J419K	1095	Black Teflon	24.95
J4127	D2 Steel	Peened	32.95
J4128	D2 Steel	Satin	32.95
J4137	CPMS 30V	Peened	42.95
J4138	CPMS 30V	Satin	42.95
J4189	Damascus	Random	79.95

Pattern 42 Blades

Overall Length: 6 5/8", Blade Length: 2 5/8", Width: 7/8", Thickness: 1/8"

CAT.#	STEEL	FINISH	PRICE
J4298	1095	Satin	24.95
J429K	1095	Black Teflon	24.95
J4227	D2 Steel	Peened	32.95
J4228	D2 Steel	Satin	32.95
J4207	440C	Peened	32.95
J4208	440C	Satin	32.95
J4257	CPM154	Peened	39.95
J4258	CPM154	Satin	39.95
J4289	Damascus	Random	69.95

Pattern 44 Blades

Overall Length: 6 1/2", Blade Length: 2 1/2", Width: 1 1/8", Thickness: 1/8"

CAT.#	STEEL	FINISH	PRICE
J4498	1095	Satin	24.95
J449K	1095	Black Teflon	24.95
J4427	D2 Steel	Peened	29.95
J4428	D2 Steel	Satin	29.95
J4407	440C	Peened	29.95
J4408	440C	Satin	29.95

Pattern 45 Blades

Overall Length: 7 3/16", Blade Length: 3 1/4", Width: 1 1/16", Thickness: 1/8"

CAT.#	STEEL	FINISH	PRICE
J4598	1095	Satin	24.95
J459K	1095	Black Teflon	24.95
J4527	D2 Steel	Peened	32.95
J4528	D2 Steel	Satin	32.95
J4507	440C	Peened	32.95
J4508	440C	Satin	32.95
J4589	Damascus	Random	79.95

CAT.#	SHEATH	PRICE
KT410	Kydex	12.95
KT455	Kydex Belt Clip	9.95

CAT.#	SHEATH	PRICE
KT420	Kydex	12.95

CAT.#	SHEATH	PRICE
KT440	Kydex	12.95
KT455	Kydex Belt Clip	9.95

CAT.#	SHEATH	PRICE
KT450	Kydex	12.95
KT455	Kydex Belt Clip	9.95

USA MADE PARACORD \$6.99/100ft - 40 colors

Pattern 31 Blades



Overall length 7 5/8", Blade Length 3", Blade Width 1 1/8", Blade Thickness 5/32". Bolster holes 1/8", Handle Holes 1/4", Thong Hole 1/4". Cryo Tempered.

CAT.#	STEEL	FINISH	HRC	PRICE
J3128	D2	Satin	59-61	31.95
J3148	154CM	Satin	58-59	35.95
J3198	1095	Satin	57-58	24.95
J319K	1095	Black	57-58	24.95
J3189	Damascus	Etched	58-60	99.95

Handles for Pattern 31



Contoured and textured handles for Pattern 31. Cut slightly oversized for proper fitting. More handle options are offered online.

Handles Smooth No Texture

CAT.#	COLOR	MATERIAL	PRICE
D3149	B.I./Cocobolo	Dymondwood	16.95
G3119	Black	G10	18.95
G3129	Red	G10	18.95

Handles Basket Weave Texture

CAT.#	COLOR	MATERIAL	PRICE
M3131	Red	Micarta	16.95
G3111	Black	G10	21.95
G3131	Orange	G10	21.95
G3151	Olive Drab	G10	21.95

Rivets/Pattern 31

Torx Screw for use with the G10 textured handles. Corby rivets for use with Dymondwood handles for flush surface.

CAT.#	TYPE	ALLOY	PRICE
B451	Torx	Brass	3.95
A461	Torx	Stainless	4.95
B660	Corby	Brass	3.49
A624	Corby	Stainless	3.49

Bolsters /Pattern 31

260 brass and 410 stainless, with matching pins. 3/16" for G10 contoured handles and 1/4" for Dymondwood handles.

CAT.#	THICK	ALLOY	PRICE
K311	3/16"	Brass	6.95
K316	3/16"	Stainless	6.95
K313	1/4"	Brass	6.95
K314	1/4"	Stainless	6.95

Pattern 36 Blades



Overall length 7 5/8", Blade Length 3", Blade Width 1", Blade Thickness 1/8". Bolster holes 1/8", Handle Holes 1/8", Thong Hole 1/4". Flat ground.

CAT.#	STEEL	FINISH	HRC	PRICE
J3628	D2	Satin	59-61	31.95
J3638	CPMS30V	Satin	59-61	41.95
J3608	440C	Satin	57-58	31.95
J3698	1095	Satin	57-58	24.95
J369K	1095	Black	57-58	24.95
J3689	Damascus	Etched	58-60	74.95

Handles for Pattern 36



Contoured and textured handles for Pattern 36. Cut slightly oversized for proper fitting. More handle options are offered online.

Handles Smooth No Texture

CAT.#	COLOR	MATERIAL	PRICE
D3653	B.I./Rosewood	Dymondwood	16.95
E3601	Birdseye Maple	Wood	24.95
E3672	Desert Ironwood	Wood	39.95

Handles Basket Weave Texture

CAT.#	COLOR	MATERIAL	PRICE
G3610	Black	G10	21.95
G3630	Orange	G10	21.95
G3650	Olive Drab	G10	21.95
G3660	Blue/Black	G10	21.95

Pins/Pattern 36

Handle pins available in brass and stainless steel. (Set of 6)

CAT.#	SIZE	ALLOY	PRICE
B826	1/8"	Brass	1.99
A846	1/8"	Stainless	1.99

Bolsters/Pattern 36

Bolsters are oversized, for proper fitting and include two matching pins. Dry fit bolsters and polish front edges before peening it to the blade.

CAT.#	THICK	ALLOY	PRICE
K363	3/16"	Brass	6.95
K364	3/16"	Stainless	6.95

Gift Certificates, Knife Projects and other knifemaking supplies online.

Download our digital catalog online or request our full color catalog for only \$5.00 postage.

JANTZ * KNIFEMAKING.COM * 800-351-8900

Plane

A first-person perspective from the cockpit of a small, light-colored aircraft. The view is looking out over a paved runway that stretches into the distance. To the left of the runway is a grassy field. In the background, there are some airport buildings, a small hill, and a clear blue sky. The word "Plane" is written in large, bold, white sans-serif font across the upper half of the image.

Crazy



HOW TO LAND A SMALL PLANE

Story and Photography by **Ryan Lee Price**

For some, the very thought of even getting into a small single-engine plane pales in comparison to trusting the huge host of variables that allows the plane to take off, much less land. When a car breaks down, it merely rolls to a stop and usually everyone is no worse for wear; worst-case scenario, it catches fire and burns to the ground. Think of all the things that have gone wrong with your car this year and now think of those things happening when your car is 5,000 feet in the air.

When a plane breaks down, the best you can hope for is in the skill of the pilot to get it started again. A small aircraft is designed to fly and will glide without power for a very long time before gravity inevitably prevails. At 5,000 feet, you have a couple of miles of glide time, which gives you the most time to either solve whatever problem has come to pass or to come to terms with it.

But what if the pilot is out of commission? What if nobody's available to fly the plane except for you? In August, a Florida man took over the controls of a small plane carrying his family when the pilot collapsed at the controls. To make matters worse, the plane was running out of fuel. He was able to stay calm, radio for help, and competently (albeit, with a few bumps) land the plane. If you're ever in this situation, follow these three steps: Aviate, Navigate, Communicate.

A runway is a long stretch of tarmac that allows for a great deal of room for error and adjustment. Keeping the airplane perfectly centered isn't a priority; keeping it from slamming into the ground is.



[TOP] Though it looks very confusing, the instrument panel of an airplane is usually well labeled and straightforward. Before leaving the ground, have the pilot give you a tour. Note where the landing gear lever is, the radio, and a few of the important gauges, like the airspeed indicator and the altitude indicator.

[BOTTOM] Turning requires a little finesse and coordination between your hands and feet, as turning the wheel on the control column banks the plane to the left or right, but the foot pedals adjust the rudder in the direction depending on which pedal you push.

AVIATE

Knowing the basics about an airplane (how it flies, what the controls do) is essential if you plan to take a ride in one, as one day, your life could depend on it. Before you take off, ask the pilot to give you a tour of the instrument panel and controls, what each one means or does, and how to read it. There is a duplicate set of controls (column and pedals) on your side of the plane for just this reason, but the foremost important thing to remember is to stay calm. Yelling and screaming won't help the situation, as only cool headedness and thoughtful decisions will. Take a few breaths, and relax.

Make sure the pilot hasn't slumped over onto the control column; grab it and hold it steady. Remember that planes like to fly,

sometimes too well. Unless your engine is out, the default setting for the plane is to climb. As speed is added from the throttle, lift will increase, and the plane will rise. Add power, speed increases; as speed increases, the plane climbs. Counter intuitive to common sense is that if you push the control column down to nose the plane down (while trying to reduce altitude), speed will increase, and the plane will want to climb, instead.

Pilots use the trim controls to keep the plane as "hands-free" as possible, rather like the cruise control of a car. When you take over the controls, the plane will continue to do whatever it is the pilot set it up to do. You'll have to change that. Whatever you want the plane to do now—turn, ascend, descend—primarily use the outside horizon and the steering column to gently stabilize the plane. No sudden, jerky movements.

"WHEN YOU SAY THE WORD 'EMERGENCY' IT WILL GAIN THE FULL ATTENTION OF NOT ONLY AIR TRAFFIC CONTROL, BUT OF ALL THE PILOTS IN THE AREA THAT MIGHT BE MONITORING THE GUARD CHANNEL."

NAVIGATE

Know where you are, where you came from, and where you are going. If you are descending or ascending, heading into a desert or directly out to sea, you need to change the direction, speed, and attitude of the plane to make it optimal. Head back to the airport of origin or head toward another that is closer? Are you headed toward a major airport or a busy traffic altitude? You need to buy some time, as it is less about the instruments and the situation and more about keeping the plane aloft in the right direction as long as possible until it is time to land. Altitude and airspeed are paramount.

Most every general aviation airplane has a transponder, a beacon like device that lets the various Air Traffic Controllers (ATC) know who you are and where you are on their radar screen. It isn't a big deal if you're in a sparse area, but when the screen is cluttered with hundreds of flights, it is easy to go unnoticed. Every flight is given a unique four-digit number, but now is the time to switch the transponder number to 7700, alerting the ATC that there is an emergency.

COMMUNICATE

If you are not already wearing your own, put on the pilot's headset and find the radio controls to change the frequency to 121.5 to contact Air Traffic Control (ATC). Press the button on the control column and clearly announce, "I have an emergency." Emergency is the critical word. When you say the word "emergency" it will gain the full attention of not only Air Traffic Control, but of all the pilots in the area that might be monitoring the guard channel.

State your name, what happened, and that you have very little knowledge on how to land a plane. If you know the call sign of the airplane you're in (always written on the dashboard and starts with the letter N), say that as well. It might take a moment or two to respond, but the people at ATC are very skilled at showing you how to land a plane. Communication with them is the utmost importance, but you have to pay attention to what they say and do exactly as they tell you. The first thing they'll ask is where are you.

As you are contacting ATC, look at the instruments. Start with the airspeed indicator and then the altitude indicator (always in the top center position on older planes). This will tell you whether the plane is pitched up or down, or if it is banking one way or another (so will the turn coordinator). The heading indicator will tell you which direction you are headed, based on a compass bearing.

Notice the airspeed (in knots or mph). Though it is human nature to try to slow down or stop the situation by "applying the brakes," don't let the air speed fall below 70 knots, otherwise you'll stall the airplane. Notice the green area on the airspeed indicator; keep the needle within that green area.

The ATC, hopefully by now, will have found a competent pilot to brief you on the things you will need to do to safely land the plane. It is your job to listen to them and make sure you are doing exactly what they say.

LANDING THE PLANE

Landing a plane is about controlling your altitude. Reduce speed by slightly pulling back on the throttle (the lever in the center of the instrument panel); this will allow the plane to descend. If the plane is going too fast, use the throttle lever again to slow it down a little more, and if the plane has dropped below that 70-knot threshold, increase the throttle slightly. Use the control column's wheel to line up the plane's wind-



shield with the center of the landing strip. Never mind the pedals for now.

The landing strip should always be steady in the windshield, and you should be aiming the nose of the plane at the beginning of the tarmac. While the plane is slowly descending, pull back slightly on the column to raise the nose of the plane. This way, the rear wheels will touch down first and it slows the plane even more. When the plane is only a few feet off of the ground, pull back the throttle to idle (toward you) and slowly push the column away from you. Once the back wheels are on the ground, gently and evenly apply the foot brakes on the tops of both of the pedals.

Once on the ground, allow the plane to come to a stop, and if you know how to shut it down (reducing the fuel/air mixture will do the trick), do so. If not, stay in the plane until you are instructed how to shut it down (with the engine running, the plane can still pull forward). Help is either on its way or already there waiting for you. **ASE**

Even though statistics say that plane travel is much safer than travel via auto, accidents and incidents happen. Be prepared to take over the controls at any given moment. The objective is to end up with all three wheels on the ground.



Right Under Your Nose

To most, this is merely a nice guitar case that invariably contains a nice guitar. However, hidden in plain sight inside this "guitar" case can be a small collection of weapons that draws no more attention than a regular guitar case. It comes in black or coyote beige.

HAZARD 4 BATTLE AXE DIVERSION BAG

Story and Photography by **Ryan Lee Price**

The climate for carrying guns in public has changed drastically from a time when a pistol on your hip or a shotgun/rifle under your arm was seen by most as a common, usual occurrence, one not to cause alarm, suspect, or pause.

The upwelling of very public crimes involving guns in the last 10 years, along with a host of other social factors, has created a hostile environment for hunters, collectors, and gun aficionados who need, as part of their

profession or hobby, to transport guns legally from one location to another. The sight of a gun case, regardless of laws, locks, or safety, creates an air of unease in most public places, not to mention that those cases are easily recognizable by thieves who would want nothing else than to make a few bucks from your prized equipment.

Covert gun cases are nothing new; stereotypical 1930s gangsters supposedly carried Tommy guns in violin cases to cast aside suspicion. However, the concept is the same today: If

you're living in an area that is generally unfriendly to firearms or you have some serious coin invested in your long arms, the idea is to hide it in plain sight or to walk undisturbed in public while legally transporting a small cache of weapons. And what better way than to make people think that you are nothing more than a musician headed to open-mic night down at the coffee shop? The Hazard 4 BattleAxe padded rifle case is a diversion bag made of quality materials and easily able to stand out from the traditional black



rifle cases by looking instead like a well-heeled guitar case.

With 40 inches of internal length (16 of these is the “guitar” neck), it can easily accommodate most modern rifles (a standard AR15 with a non-collapsible stock and a mounted scope fits perfectly), and is wide enough at 15 inches (9 at the neck) to even keep the scope mounted.

The case is well made and feels solid, with double stitching in stress points and a host of added details. The handle is thickly padded and there are three “silent” double zippered pockets on the front, perfect for extra magazines, a couple boxes of ammunition or additional equipment. The top pocket is a perfect size for a box of shotgun shells or folded up ear protection, while the longer pocket on the neck has loop pile sewn into the base to secure a holstered pistol. The main outside pocket is a well-planned organizer to store tools, pencils/pens, or a number of other things.

The inside is rather sparse, with two hook-and-loop straps that can be moved to different areas to accommodate almost any size rifle. The partition is made of a soft material which breaks the bag in half, allowing for an additional rifle (more straps can be purchased and the partition as well as the inside of the lid allows for the use

(continued on page 129)



1. It is long enough to handle a stock AR-15 with room to spare or, interestingly enough, a guitar. The straps can be moved to accommodate most size rifles. 2. The straps can be moved to accommodate most size rifles and are equipped with pull loops. 3. At the top of the case's interior is a double-stitched patch to be used to protect the inside fabric from the rifle's muzzle. 4. The main double zipper has holes to allow for a lock, as is required while travelling with a gun. 5. The large organizer pouch on the front of the case has enough pockets to hold most anything, including an interior zipper area for a laptop or folders/papers. 6. The handle is very thick and sturdy, helping to belie the weight of the case's contents. 7. Several things that may give away the fact that this case is no mere guitar case are several extra hooks and canvas rings. Though these are built for a shoulder strap, one isn't included (MSRP starts at \$179.99).

Sluicing the Truth

HOW TO PASS A LIE-DETECTOR TEST

Story by **Scott Fisher**



How do you pass a lie-detector test? It's easy to say that there's a simple, three-word answer: "Tell the truth." But while honesty is always the best policy, knowing a few things about how the test works—and how its readings can be interpreted by the operator—will help make sure that your answers accurately convey the truth to your interviewer.

Whether you're being investigated for a crime you didn't commit or you're applying for a job with an organization that needs to investigate you for a secure position, being prepared

for the test will help ensure that your truthful answers come through.

First, let's talk about how a lie detector works. The technical name for a lie detector—the polygraph—refers to the way the device writes down multiple streams of data about your body as you are interviewed by the polygraph operator. The polygraph detects changes in your body's vital signs—breathing rate, heart rate, blood pressure, and perspiration—showing you are under stress, which—the theory goes—indicates that you are lying.

Of course, the simple fact that you're being interviewed—possibly even interrogated—

"THE POLYGRAPH DETECTS CHANGES IN YOUR BODY'S VITAL SIGNS—BREATHING RATE, HEART RATE, BLOOD PRESSURE, AND PERSPIRATION—SHOWING YOU ARE UNDER STRESS, WHICH—THE THEORY GOES—INDICATES THAT YOU ARE LYING."

while hooked up to a battery of electronic sensors can stress you out from the beginning. So here are a few tips from experienced polygraph operators to help you establish your innocence or get accepted for the job you want.

BEFORE YOUR INTERVIEW

Get a good night's sleep, but don't over-medicate: you'll need to be clear-headed for the test the next day. Avoid alcohol, as it can cause you to wake in the middle of the night and actually get less sleep. If you take an antihistamine (such as diphenhydramine, the additive in various "night-time pain relief" medications) to make you drowsy, be sure not to take it in conjunction with decongestants such as pseudoephedrine or phenylephrine, as these can raise your blood pressure—the exact opposite of what you want on test day.

Think ahead about ways you calm yourself—obviously taking a walk won't work, but breathe regularly, think relaxing thoughts (some people imagine they're on a tropical beach), or physically relax your body as you sit in the examination chair. Clearing your mind of stress before the interview will help you be able to clear stress when you're connected to the machine.

If you have any regular medications, be sure to take them at your normal time. Also, eat at your accustomed time—being hungry can raise your stress level and could lead to inaccurate results.

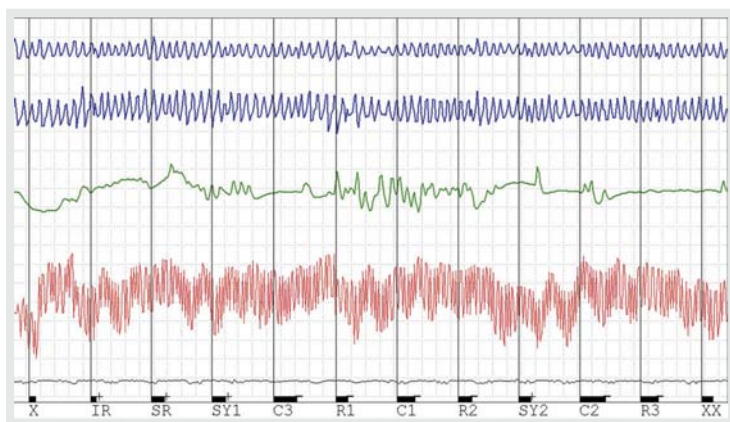
And speaking of time: Be sure to allow enough time to arrive at the polygraph location at least 10 minutes ahead of the scheduled appointment. The last thing you want is to arrive late, stressed out about the time or with your heart rate and blood pressure elevated from literally running to the interview.

DURING YOUR INTERVIEW

Wear professional-looking, conservative clothing. Don't choose anything too expensive or flashy looking; the object is to look as neutral as possible. This isn't the time to



Once a highly specialized skill set was needed to operate the very high-tech equipment, there are now several companies that provide a wide range of polygraph options that are easy to use and affordable.



express your style; it's time to be calm, self-possessed, and as ordinary as possible.

The examiner will ask you three kinds of questions:

Control: Control questions have no connection with why you're there. They are meant to generate reactions similar to those you exhibit when lying. They are usually broad in scope and designed to make you feel stress, so that your answers show a reading against which the real questions can be compared. For example, a typical control question might be, "Have you ever betrayed someone who trusted you?" After the interview, the examiner will compare your readings on these control questions to the readings on the relevant questions.

Irrelevant: Irrelevant questions also have no connection with your reason for being there; they are obvious questions like, "Are the lights on in this room?" or asking you to confirm the date. These questions also serve

as comparison to your reactions to the relevant questions, assuming that you're giving a truthful answer.

Relevant: Relevant questions are the questions about which you are being examined. For example, a job interviewer might ask, "Have you ever stolen from an employer?" If your "no" answer here shows higher stress than the control and irrelevant questions, the interviewer will mark your answer as "deception." Stress levels lower than the control questions will be interpreted as "no deception indicated" by the examiner.

When answering these different questions, give short and to-the-point answers. Don't ramble—most questions you will be asked can be answered with yes or no. As they say, tell the truth, the whole truth, and nothing but the truth—giving more information than the examiner is asking you for can cause stress (leading to a false positive), or may simply look like you're covering something up.

AFTER YOUR INTERVIEW

If your results show "no deception indicated" on all the relevant questions, congratulations, you've passed. But remember, it's all based on comparing the readings during the control and irrelevant questions—meant to establish your stress level when giving an uncomfortable answer—against your readings during the relevant questions. By concentrating on your innocence, and on the truthfulness of your answers to the relevant questions, you should be able to relax enough even under the stress of the lie-detector test to establish your innocence. **ASG**



PHOTO BY THINKSTOCK

WIND POWER

Cheap, Green, And Effective

FROM ANCIENT WINDMILLS TO HIGH-TECH WIND TURBINES Story by **Larry Schwartz**

Do you hate looking at your bill from the power company every month? Is power self-sufficiency one of the weak areas in your preparedness plans? Do you have a penchant for doing things using old technologies? Well, if any of these are you, then using wind power should be right up your alley. Evolving from ancient windmills to modern high-tech wind turbines, wind power technology has a solution that can fit practically any need or location.

Pre-dated only by the use of water as a source of power in the third century B.C., wind power was first used by the Greeks in the first century A.D. when windmills were used to power simple machinery. Those early wind-driven machines evolved over the centuries into the windmills we now think of populating the Dutch countryside, as well as mill grains and even to move water and run sawmills. This evolution has produced a variety of large and small wind turbines that people in the twenty-first century A.D. use to generate electricity, this century's favored source of power for machinery.

DOES WIND POWER MAKE SENSE FOR YOU?

Wind power is attractive to the modern homeowner and businessperson for a variety of reasons. Wind power is a renewable, free source of energy, so once you put your system in place, you do not have any recurring "fuel" costs to worry about. Since you don't burn any fuel, it is, along with solar power, one of the greenest of energy sources. It is an easy way to lower your electric bill each month and if you live in an area with an above average wind speed, you can even make money by either selling the power back to the electric utility or getting a credit on your future electric bills.

[RIGHT] Horizontal axis wind turbines (HAWTs) are the most common wind turbines in use today because of their efficiency, but they require a large area to accommodate the rotating propellers.



[ABOVE] Vertical axis wind turbines (VAWTs) are not as efficient as HAWTs, but they are more useful in confined areas such as urban applications where there isn't room for the large propellers to spin.

"MOST STATES AND PROVINCES HAVE INCENTIVES OF SOME FORM FOR PEOPLE WHO WANT TO PURCHASE ALTERNATIVE POWER SYSTEMS."

It is also a very flexible source of power as you can apply it directly to your electrical appliances by running the DC from the wind turbine through a power inverter or storing it in batteries, whichever makes the most sense for your needs. If you do not have access to the local electrical grid or if running power lines to your location is cost prohibitive, then wind power may be your best (and only) option for getting electricity to your site. It also has a lower installation cost than solar power.

Now that we have looked at why wind power can be a good choice for you, let's look at some constraints that may make it a bad choice for you. Unlike water flowing in a river or the sun shining every day, the wind blowing and the speed at which it blows are not constants. Some days it may blow strong all day and others it may not blow at all. For these reasons, if you are looking for a constant source of power, you might want to look at other options like solar or natural gas for generating heat and electricity.

Zoning can also be a problem, although variances are often granted. Depending on the type of wind turbine you and your contractor decide to install, you may need a large amount of space for the tower and its supporting cables. Also, wind turbines are not silent and the larger ones will make more noise than smaller ones. General Electric recommends setting up larger turbine towers at least 300 yards from any neighbors to avoid complaints about noise, although other sources recommend as near as 100 yards. Of course, if you don't need the power that a large turbine will give you, the location can be much closer, as in a residential lot. And

lastly, there may not be enough wind at your site to make it worth your while to install a wind turbine system.

HORIZONTAL OR VERTICAL

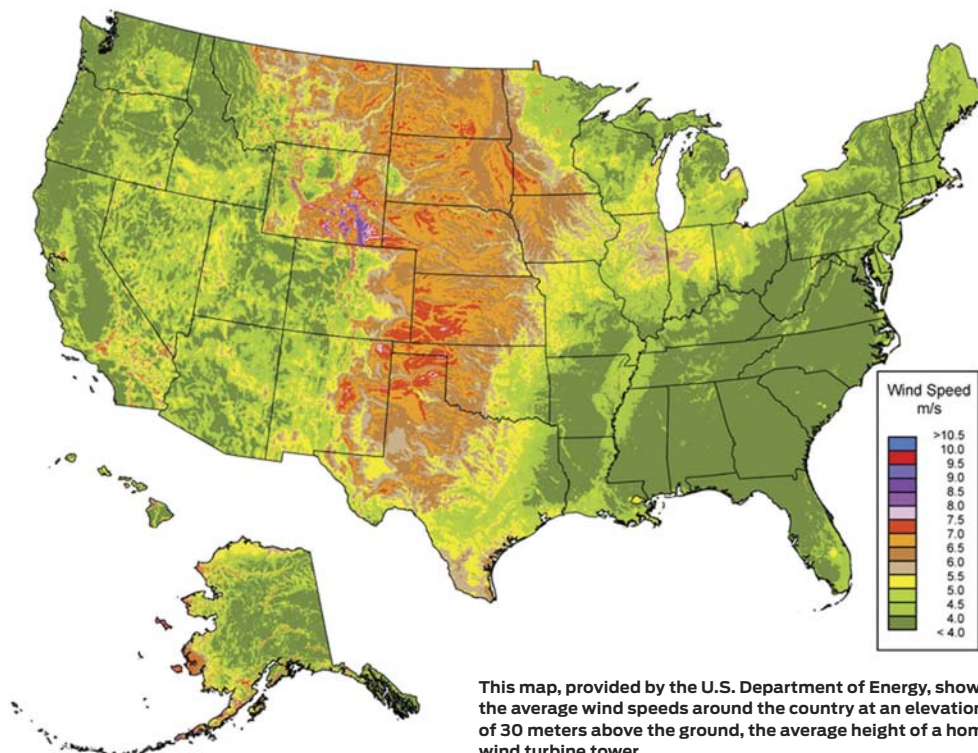
There are two basic styles of wind turbines in use today, horizontal axis wind turbines (HAWTs) and vertical axis wind turbines (VAWTs). The orientation of the axis that the turbine spins on gives each their name. HAWTs are like the windmills we think of on cattle ranches for pumping water from a well and the tall white wind turbines we see out in the desert with those giant propellers. VAWTs are like the anemometers the weatherman uses to determine wind speed where the parts that catch the air spin around like a top on a vertically oriented axis. Each design has its place and purpose, its own strengths and weaknesses.

HAWTs are best where you need to catch the wind high up and have plenty of lateral room around them for the long blades to spin. They are used for most applications, and they are the most common wind turbine on the market. Their popularity is due in large part to the lack of turbulence that their design produces, which makes them more efficient.

VAWTs are not as effective as HAWTs because their design is less aerodynamic, but they are better suited to more confined spaces, such as in close residential neighborhoods or in urban environments. They can be set closer to houses since they do not need the lateral space for its blades to move like the HAWT does. VAWTs also are independent of the direction from which the wind blows, since it spins on its vertical axis regardless of the direction. They are also ideal for installation on the rooftops of very stable building like apartment complexes or steel and concrete buildings in the inner city.

HOW BEST TO IMPLEMENT WIND POWER

There are a variety of ways to implement a wind-generated power source. For a home or facility that has access to the electric utility grid, it can be used to augment what is purchased from the utility. Wind-generated electricity goes into a power inverter and from there into the home or business' electric service panel right along with the electricity from the electric utility. When wind-generated power is created, the draw on the utility is reduced and you use your wind



This map, provided by the U.S. Department of Energy, shows the average wind speeds around the country at an elevation of 30 meters above the ground, the average height of a home wind turbine tower.

power electricity. In some states, if more wind-generated power is created than is needed in the house, it can be sold back to the utility as a credit.

Since the wind does not blow all of the time and not as strongly all the time, its best use is as part of a blended or hybrid system that combines wind, solar, and even water to generate electricity. In a system like this, the electricity may be used as it is generated or it can be placed into a storage battery. When batteries are used to store the electricity, it is often best to have everything run off of the batteries with a power inverter in place to transform the direct current provided by the battery into the alternating current needed to run the household's machinery and lights.

WHERE DO YOU GO FROM HERE?

So, it all comes down to balancing your pros and cons. Many people will be able to benefit from wind power, especially if they are on large lots or if they do not need their wind system to provide all of their power.

If you want or need wind power to provide all of your electricity, then you will need a large turbine, mounted high enough to get to the stronger winds that are above any obstacles around your house. That will require significant space for clearance of the blades, as it will have to be placed further from any structures on your property and

those of your neighbors'. And, of course, the cost will be higher.

If you want wind power to only augment your power supply, because you are connected to the electrical grid, or are using wind as part of a hybrid system that includes other sources like solar or natural gas, then you can get by with less space, less initial costs, and will have more flexibility in how you set up your system.

If you are looking for a good way to provide a constant flow of electrical power to your home or business, the best way to use wind power is as part of an integrated hybrid power system where you combine different sources of energy like solar, natural gas, backup generators, and battery systems. This hybrid allows you to take advantage of the strengths of each type of power and minimize their weaknesses. **ASG**

FOR MORE INFORMATION

→ To learn more about using wind power, check out these websites and online resources:

- Home Power Magazine; HomePower.com
- U. S. Department of Energy; Energy.gov
- Small Wind Electric Systems sub-website on the DoE website; <http://www.energy.gov/energysaver/articles/small-wind-electric-systems>
- Small Wind Electric Systems, A U.S. Consumer's Guide (a PDF file that is a great source of information on small wind systems and where to find more information); <http://www.nrel.gov/docs/fy07osti/42005.pdf>

INCENTIVES TO GO WITH WIND POWER

Most states and provinces have incentives of some form for people who want to purchase alternative power systems. Do a Google search for energy incentives in your state, check with your state and county Department of Energy to see what they can tell you about using alternative forms of energy in their jurisdictions and what is involved. They may also be able to point you to some good vendors or information. Also, check out the information on the DESIRE (Database of State Incentives for Renewables and Efficiency) website at Dsireusa.org.



The best use of wind power is as part of a hybrid system that combines wind, solar, and other power sources together to provide a steady and constant source of power to the home or business.



K9 Survival

THE GRIT AND DETERMINATION OF SEARCH AND RESCUE DOGS

Story by **Ryan Lee Price** | Photography by Melanie Catalano

The Great St. Bernard Pass connects Martigny in Switzerland with Aosta in Italy via the third highest road in Switzerland, passing along the ridge between the Mont Blanc and the Monte Rosa, the two highest summits of the Alps. Evidence of people using this road have dated back to the Bronze Age and portions of it were part of the original Roman road system. Along the highest point in the road and covered in a perpetual snow, the Great St. Bernard Hospice was founded in 1049 by Saint Bernard of Menthon, an archdeacon in Aosta whose responsibility it was to care for travelers who frequently used the treacherous mountain pass. Tired of seeing weary travelers arriving into Aosta after having been terrorized by highway robbers, he decided to build a

hostel at the summit, some 8,000 feet above sea level to offer protection and a place of respite against the dangers of the road.

Six hundred years later, monks at the hostel began to breed mastiff-style Asiatic dogs with other large breeds found in Italy as companions and guard dogs for the hostel. Just before 1700, they started naming their breeds St. Bernards, and by 1750, they routinely were sent along with ser-

vants called “marronniers,” who helped guide the travelers safely down the mountain. The broad chests of the St. Bernards were used to clear a path in the snow, but it was soon discovered that they possessed an incredible sense of smell and that they could easily discover people buried in snow and seek out injured or lost travelers. For the next 150 years, they would be sent out in packs of two or three in search of lost travelers or avalanche victims. When a traveler was scented, one St. Bernard would dig down through the snow and locate the person, then sit on him to provide warmth while the others returned to the hostel to alert the monks.

The most famous St. Bernard of them all was an individual name Barry, who lived at the hostel from 1800 to 1814 and is credited with saving over 40



people in his lifetime. The most famous rescue occurred when a young boy was injured in an avalanche and was unable to move. When Barry found him, he licked the boy's face until he awoke, laid with him to warm him up, and incredibly, carried the boy on his back to the hostel. Since then, one dog at the hostel has always been named Barry in his honor, but the little casks of rum on their collars is just a myth.

Fast forward 200 years, and dogs' keen sense of smell, their unfaltering loyalty, and their remarkable ability at direction finding is still highly valued during search and rescue missions throughout the United States, especially in remote wilderness locations of the western states.

We met with five such remarkable dogs and their intrepid handlers, all unpaid volunteers offering their services to not only local law enforcement in California, but are willing to travel to neighboring states when the need arises. They are all members of California Rescue Dog Association (<http://search-dogs.carda.org>).

Established in 1976, the California Rescue Dog Association (CARDAs) enjoys the resources of over 120 mission-ready dog teams spread throughout the state, in addition to 113 volunteers that search without the aid of a dog. CARDAs teams participate in around 400 searches per year. Members are available 24-hours a day, seven days a week, to search any part of the state for any kind of missing person (e.g. missing child, lost hiker, trapped earthquake victim, or missing elderly).

All CARDA dog handlers initially train a dog in one of two disciplines: trailing or area search.

Trailing dogs are trained to follow the path that a lost person has taken. Similar to stereotypical bloodhounds, these dogs require a properly preserved scent guide (i.e. like a sock or glove from the subject) and are not distracted by other people in the area. These dogs work on long leashes. Trailing dogs can frequently work trails that are hours or days old.

Area Search dogs are trained to find any human scent in the area regardless



[ABOVE] The possibility of being stuck out in the field on a search and rescue mission for multiple days is always in the back of their minds, so not only do they have to bring enough equipment—food, shelter, water, and survival gear—for themselves, but they also have a dog's needs to tend to as well. **[RIGHT]** On a short search exercise, Kristi and Raezor make quick work of finding Donna, and is praised with a treat.



of subject or context. Area search dogs work most frequently off-leash and can cover very large areas. They are trained to find a person and then return to their handler with a notification.

After certifying in one of these disciplines, teams may certify in any combination of the following specialties:

Cadaver dogs are trained in the location of human remains, regardless of the stage of decomposition.

Water Search dogs are trained to locate human remains which emanates from under the water. These dogs work along the shore and in boats to locate the scent as it rises up through the water.

Avalanche dogs are trained to locate avalanche victims buried in snow.

Disaster dogs are trained to locate victims of any number of natural disasters that may be buried in rubble from a collapsed buildings. In California, this type of dog is most often used after earthquakes, but in other states, they can be used after hurricanes or tornados.

Volunteers, through training and exercises, devote up to 100 hours a month in the preparation of being called on by the community. They represent a wide swath of society and many different backgrounds, from active or retired peace officers to working professionals. Despite this, they all have a common interest in helping people with their unmatched expertise in the use of search dogs.



Donna Sanford Ceri

→ For the last 22 years, Donna Sanford has been a language arts and social studies teacher at a middle school in Temecula, California, and for the last 15, she has been very involved in CARTA. Six-year-old Ceri is a Dutch Shepherd who began her life in the competitive French Ring Sport, a personal protection sport that, through competition, tests a dog's working ability. At 14 months old, when the handler determined Ceri would never be competitive in French Ring Sport, Donna took her in and introduced her to the search and rescue life. Donna originally went with her husband Steve to his training and deciding that she needed a dog, too. Rasta, her first dog, a German Shepherd, worked until he was 12 years old.

As hikers and campers, the rugged demands of search and rescue fit well with their lifestyle, marrying their love of the out-

doors with their desire to give back to the community. Donna added, "Finding missing people is our way to give back to the community, and the times we provide closure to families suffering a loss is also important."

Ceri, Donna's third dog, is an area search dog as well as certified in finding human remains. Known colloquially as a "cadaver dog," Donna trained her from a puppy to search for human remains with the help of the local coroner's office, which provided towels and clothes that had spent time near a body. "We even hit up our friends for used band aids," Donna says. "Scent sources that are real work the best" for training. Ceri's scent is so specialized that she can tell the difference between human and animal, even through several feet of dirt.

A couple of years ago in Thousand Palms, Calif., Ceri and Donna were assigned to search for a transient who had built a shelter in a sand berm that had collapsed. In no time, Ceri displayed her "tell," the signal that lets Donna know she found something. "She drops her chin down at the source and then sits on top of it." Twelve feet down through the sand, they found the body.

Another instance bears a testament to Ceri's abilities. A 17-year-old girl had been murdered by her boyfriend, placed in a trashcan and dropped off the La Sobrante Landfill in Riverside, Calif. At the culmination of a two-month-long search, on the very last day of the search in that area of the landfill, Ceri came upon the scent of the girl's remains. Ceri had only been certified for three months, and it was one of her first searches.



Trish Moutard

I.C.

→ I.C., an Australian Shepherd, is Trish's sixth mission-ready search and rescue dog, as she has been actively involved in search and rescue since 1992, when the chief of a volunteer fire department she was working at was the captain of the local search and rescue team. "He had a dog, and it intrigued me," says Trish. "He got me involved in the explorer search and rescue team when I was only 22 years old. My first SAR dog was a German Shepherd from the pound."

Now a medical supervisor at the San Diego Humane Society in Oceanside, Calif., Trish remembered her earlier experiences: "Your first dog will take you two years to train because you're learning about search and rescue while you're trying to teach your dog. You get involved in training groups. You can get a mentor and lots of help from the team. I spent a lot of time watching what other handlers were doing. They were a wonderful group for support."

Becoming a dog handler is just as difficult as the training is for the dogs. You need to know a great deal of outdoor skills beyond just working with the dog. Rope work, knots, navigation, basic survival skills. Trish added: "You're training the person as well as training the dog." When heading out on a search and rescue mission, the law enforcement agency in charge usually asks for a three-day commitment from each team. Very infrequently is a hotel an option, so they usually sleep in the truck or in tents. "If they can bring you back to base they will, but if not, I always have my 72-



hour bag with me. I can easily add equipment if it will be an overnight situation, either a lightweight tent, a tube tent or a tarp for shelter. If I am told that we're using a helicopter to go five miles into the backcountry, I'm going to bring everything I can with me, as you can't rely on the helicopter to come back and get you."

I.C., which stands for Incident Commander because of his alpha personality, started training as an area dog when he was a puppy. Though he looks for live people, he is training for his cadaver certification too, so he can be more versatile in the field. However, he constantly exemplifies why dogs make excellent search and rescue tools.

In Oroville, Calif., a potentially suicidal man left behind all of his belongings and started walking down a dirt road behind his house. After he was reported missing by his family, law enforcement deployed K9 teams, I.C. and Trish being one of them. To pick up any potential scents, Trish allowed I.C., who isn't a trailing dog, to tour the man's house to get an idea of who they were looking for. The sun had set, and it was soon pitch black. The road that they were working led to an open field full of some abandoned cars. After checking each car, they were about to move on, when I.C. gave an alert (he jumps on Trish) and took her back to one of the cars. I.C. jumped onto the car, where they discovered the man hiding.





Mike De Lannoy Journey

→ Certified as a wilderness area dog, three-year old Journey is a spirited border collie currently cross-training as a cadaver dog. "She'll be ready to pass it," boasted Mike. "It is unusual to have a cross-trained dog like this, one certified in both areas." Mike is a structural engineer living in Corona, Calif., and he and his wife, Ember, volunteered for the search and rescue program before even having a dog. "I was just a ground searcher and used as support," he added. Ember eventually got a dog, Auggie, and they were looking for a job for the dog to do. They were outdoors people; they liked to hike and camp. They began search and rescue because of the dogs, as it was a great way to give back to the community while giving the dog a real sense of purpose.

After getting involved with the search and rescue group

(Mike, as well as some of the others are also attached to the Riverside County Search Dogs Association, a group affiliated with the Riverside County Sheriff's Department—RiversideCountySearchDog.org), Mike began the search for his own dog. "I wanted a dog with good stamina, and border collies are known for good stamina and high drive. And it needed to come from a good line, with good body structure. Journey's breeder tested the dogs for hips, eyes, and joints, so I knew that he would be up to the task."

When they found Journey, Mike immediately started the task of training him to be an area search dog, something he picked up rather quickly. When the decision was made for Journey to branch out into other specialties, they chose cadavers because it pertains to a lot of searches in Southern California. To train to search for human remains, Mike found a variety of sources for materials, from human blood, bones and even placenta to dirt from an actual grave. The county coroner was cooperative in sharing materials. "In the case of Journey," Mike said, "We hide bones and she finds them. There was no real difficult training involved. Journey just picked it up." They place some gauze with a little blood on it out in a field, and she alerts to it immediately. "A two- or three-year-old bone has enough scent left on it for a dog to react with. It doesn't take long for them to become familiar with the smell, and you can hide it three or four feet off of the

ground or make it more difficult depending on the time of day and weather, and she will find it."

One of Mike's most memorable rescues was long before he had Journey as his partner. He was a support personnel, assisting Steve Sanford and his dog Guinness (page 81) on a search for a missing 19-year-old autistic boy in Wildomar, about 70 miles north of San Diego. The boy had a fascination with hiking and had mentioned to his mother that he always wanted to hike over the Cleveland National Forest to the beach. One day, he simply walked off the campus of his high school and was reported missing. Three days into the search, a woman recognized the boy on the news and reported that she saw him crossing an intersection on the opposite side of town the search was focused on.

When efforts were redeployed to the new area, a trailing dog found his scent, and it led up into a canyon. However, a hovering helicopter involved in the search was too distracting to the dogs, and it wasn't until the helicopter peeled off to refuel were they able to hear the boy calling for help. Guinness found him huddled in a creek bed. At the hospital, because of a lack of medication he was on, his liver had already started to shut down, but they rescued him in the nick of time. "It was a special experience for us because we had saved the boy's life," said Mike, "and it was great to see how relieved the family was."

Steve Sanford Guinness

→ A parts manager at a Lincoln dealership, Steve Sanford has been with his nearly seven-year-old German shepherd Guinness since he was a puppy. With his first German shepherd, Mythos, Steve got involved in search and rescue in 1999.

"When I got him, I decided that he wasn't going to just be a pet and that I wanted to do something with him." Originally he decided that he was going to begin the Schutzhund training, a rigorous program used to test the aptitude of German Shepherds as working dogs. "However, I met some search and rescue people, and that seemed to better fit our lifestyle."

Steve and his wife, Donna (see page 78), are both outdoors people. "We do a lot of backpacking and camping, and this combines both of our desires: being able to do something outdoors with Guinness and to give back to the community."

One of Steve's earliest experiences with search and rescue didn't involve Guinness, or any dog for that matter. "We were searching for a missing hunter, and I was paired with the hunter's friend. It was getting toward the end of the day, and they were about ready to call off the search because it was getting hard to see and unsafe. We were watching the friend get more and more stressed out, and to finally almost come to tears when we heard on the radio that his friend was found. It gave us a real feeling of what the family of a missing person goes through."

Guinness started training as a cadaver dog since he was a puppy, following in the footsteps of Steve's first dog, Mythos (the fact that both of his Shepherds share the names of popular breweries is a coincidence).

"Training methods are play driven," explained Steve. "It is

one of the reasons I have a German shepherd is that they are a high-drive dog. You teach them to play at a heightened level, and the results are that they want to stay in that game."

The first steps in training Guinness was a simple game of hide-and-seek. In full sight, Steve would run away and hide. "He would watch me run away from him and duck behind a tree." Guinness would waste no time in finding him, where he would receive a lot of praise. "That's how you start," said Steve. "You're teaching the dog a game, and as long as they have fun with it, they are going to do it well and they're going to want to do it well." Soon, you can transfer that concept to finding anyone.

To experience the motivation and drive of these dogs is a spectacular sight. Steve and Guinness were involved in a mission-ready test, a four-hour-long search and rescue exercise that covers 110 acres in search of one of three individuals. "We had worked for three hours and 55 minutes, and we hadn't found a single person."

Guinness was completely exhausted and stressed out because he could sense it was coming to an end, and it wasn't a good end. The two ended up in an area they hadn't yet searched, and "suddenly, Guinness's ears pop up and he ran off, full of energy, and found someone." His alert is that he bites a toy slung on Steve's pack, but this time, Guinness was so excited that he had found someone, that he jumped on Steve and bruised Steve's knee in the process. When Guinness led Steve back to the subject, he was so exhausted, he just laid down right there. "What impressed me most about Guinness," added Steve, "is that it didn't matter how tired he was, he did what he needed to do and did so with all of the energy he had left."





Kristi Moutard Raezor

→ Almost five years ago, Raezor, was returned to the animal shelter because the owner said she was a “stupid and untrainable puppy.” Kristi, a surgical tech who consults in the opening of new hospitals, adopted the Australian Shepherd-Springer cross, and decided to train her as a foster owner until she could find a loving home for her.

She got involved in search and rescue about 15 years ago when she would hike with the Butte County (Northern California) search and rescue team. “I like being able to help people, to do something to help bring a loved one home alive or, if we have to, bring home a body. I don’t like to say it gives them answers, but it might keep them from having questions.”

When Kristi moved to Southern California in 2011, she joined CARDA with her wife, Trish, before finding a dog. They had been in negotiations with a breeder for a dog, when they came across Raezor and her story of being returned to the shelter. They got her with the idea of giving her some obedience training before finding him a new home, and it never occurred to them to keep her. Trish and Kristi already had two dogs.

During this time, after Raezor had been with them for only a couple of weeks, they were called on a “private hire” search by the family of a missing person in the Fort Bragg area of Northern California. Raezor was only 16 weeks old, and instead of leaving him in the truck, they let him tag along. “We were walking down some railroad tracks, and the dogs would go out into the clearings and search,” remembers Kristi. “After a couple of times of the dogs going out, she started to go with them, pretty soon, taking the point in the search.” They trav-

eled nine miles the first day and seven the second, and by the time they had concluded their search, “Raezor was doing fantastic work, showing a real aptitude for search and rescue.”

They began training her immediately. “We started working at night,” she explains. “So the dog relies less on his eyes and more on his nose.” They started with runaways, where they would take turns at hiding and letting Raezor find them. “We made a big deal about running away with her favorite toy, and then we let her lose and say, ‘go find.’” When they make a find, they get rewarded with a “massive puppy party.” Now, the term “go find” applies to anyone, anywhere.

Their most memorable search was before Raezor was mission ready, so she wasn’t officially a search and rescue dog yet. There was a car crash on the Feather River and the 70 in Northern California, and three people had died. First responders had found two of the bodies, and search and rescue was called in to locate the third. It was quickly found by another dog, so Kristi and Raezor headed for home, stopping at a restaurant for dinner before the long drive home. While there, they met the mother and grandmother of one of the crash victims.

“They asked to see the dogs,” explained Kristi. “And the mother was able to talk about her son. Her son loved dogs. Raezor was melting into her.” After a long reflective pause, Kristi continued: “That’s a story that always sticks in my head. It’s a sad story, but it was wonderful to see that Raezor played an instrumental part in helping the family deal with their loss.”

Though she didn’t even complete a search that day, Raezor was still able to give what she could back to the community. **ASR**



1



3



4



4



2

1. Keeping the dog healthy and happy makes for a better working dog when deployed on a mission. Keeping a collapsible water bowl and a dog's favorite toy readily available is paramount to a smooth running mission.
2. Tracking the dog has gone high-tech. I.C., the Australian Shepherd, wears a GPS collar mated to this locator. In the hour that we spent with I.C., the blue line represents where he went in relation to the center point. He was always searching, even "off duty."
3. The dogs have their own gear as well. In addition to a reflective vest and harness system, they also wear a set of bells to give the handler an idea as to where they are, as well as a light stick for a visible location indicator.
4. As part of California Rescue Dog Association (CARDA), these men and women volunteer their time and energy to travel anywhere in California or the neighboring states, with little warning, to search for a missing person.
5. A hotel on wheels. The dogs ride in style in Kristi's converted Ford F-150. Each dog has his own space with plenty of room underneath for their equipment.
6. Some of the communication devices they carry with them. Becoming lost yourself doesn't help the search and rescue mission, so staying in contact with the base is important, but also is knowing where you are at all times with a reliable GPS system.
7. Ceri is sporting a pair of dog goggles to protect her eyes from dust kicked up by helicopters or to be used on especially windy searches.



6



7



5



Man's Best Friend

ESEE KNIVES ESEE-6

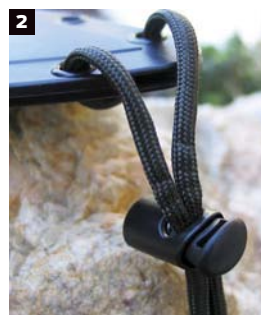
Story and Photography by **Ryan Lee Price**

Since 1997, outdoor enthusiasts and survivalists, Jeff Randall and Mike Perrin, have been providing training in the art of jungle survival, gear, and logistics to law enforcement and military units as well as civilians. Under Randall's Adventure Training Company, the two men quickly realized that the equipment they were training with—specifically, the machetes—were thin and too flexible. They contracted a couple of companies to produce knives for them, and after 2007, they decided to design and make their own. ESEE was born.

Randall and Perrin noticed that a lot of knives look great on paper but have a tough time holding up in real-world situations. Because of this, new products aren't churned out on a monthly basis. Not only do they personally test each prototype but they also have a cadre of users that test and abuse each model before submitting feedback. The knives are improved, redesigned, and issues rectified. This way, any knife that leaves ESEE's doors, doesn't just look cool on paper and function in theory, but is purposely designed to take whatever it is that's thrown its way.



With a lot of knives on the market, one would be hard-pressed to find a knife that is quality made and as thoroughly tested as the ESEE-6.



1. Made from 1095 steel, everything but the cutting edge is powdercoated (either black or olive drab) for protection and esthetics. **2.** The included paracord can be upgraded by adding length or wrapping it through the available six holes on the sheath. **3.** The full tang exposes a pommel that is suitable for striking, while the hole is to attach a lanyard. **4.** The deep finger guard and choil

The ESEE-6 line of knives comes in a variety of configurations (serrated or non and clip-point versions with sharpened swedge), but the most useful is the 6 1/2-inch drop-point blade. It is powdercoated (either black or olive drab) with a slight texture to give it a sense of rugged appearance and to protect the blade face. The 3/16-inch thick blade is made from 1095 carbon steel and has a flat ground bevel, and the long, curving drop-point allows for more control over finer cuts over the entire span of the blade. It is a sin that this blade is not stainless, so make sure to mind the exposed parts, especially in the rainy season.

Its full tang runs the length of the Micarta canvas removable grips, while the exposed pommel means that it can be used as a hammer, or you can use a hammer on it. The hole in the pommel is perfect for a lanyard. The grips are thick, impervious to heat, cold, abrasion, impact, and chemicals. The slight taper toward the pommel was designed by someone who has knowledge of human anatomy, as it fits superbly in the palm. The finger guard is sturdy and deep enough to stop the momentum created during stabs, while the jimping and choil are both well defined, allowing for the user to choke up on the blade when making fine cuts.

The friction sheath is molded plastic, but it should have been kydex like most other knives in its class. The belt clip is steel, and there is a scalloped thumb ramp to push off of when pulling out the knife. Holes all around the edges of the sheath are for a variety of paracord lashings, but comes with one at the end to secure

offers a variety of holding points, depending on the duties required of the knife. The friction-fitting sheath is made from molded plastic instead of the popular kydex, but has a few subtle abilities that makes it stand out. **5.** The steel belt clip is strong and maintains a tight fit on belts up to 2 inches thick. **6.** Reversible and with holes for additional paracord, the sheath is configurable in a variety of ways.

to your leg. As well, it can be switched to either side of the body and note the drainage hole on the bottom.

Overall, the 12-inch knife feels all of its 12 ounces, but does so without feeling heavy or tiring after use. It is well balanced and allows for a well-controlled experience when using it for something as violent as batoning firewood or something as fine as shaving kindling. **ASB**

Specs

ESEE Knives ESEE-6
Manufacturer: ESEE Knives
Model: ESEE-6
Source: ESEKnives.com/
Overall length: 11 3/4 inches
Blade length: 6 1/2 inches
Blade width: 1 1/2 inches
Blade thickness: 3/16 inches
Handle thickness: 11/16 inches
Handle material: Micarta
Weight: 12 ounces
Blade material: 1095 carbon steel
Rockwell hardness: 55-57
MSRP: \$139.95





Seven Water Filtration Systems

AVOIDING A COCKTAIL
OF BACTERIA, VIRUSES,
AND PARASITES

Story and Photography by **Ryan Lee Price**

If you spend any time away from the confines of civilization, then you know how important water is to your daily routine. The human body is a giant bag of water—we're 60 to 70 percent water—and that bag must be refilled frequently. And it must be fresh water. In the backcountry of North America, water is a readily available commodity, as the climate of most of the wilderness is the perfect atmosphere for streams, creeks and rivers flowing with fresh water. However, how do you know that the next mouthful isn't going to be swimming with bacteria, viruses, protozoa, parasitic worm eggs and chemical contaminants? The last thing you want to concern yourself are the nasty effects contaminated water will have on your nervous system, yet alone your digestive system.

DANGERS LURK IN WATER

Toxic algal blooms; bacterial spores such as *Campylobacter jejuni*, *Salmonella*, *Shigella*, and *Escherichia coli*; viruses such as rotavirus, norwalk virus, and hepatitis A; parasitic worms like cestodes (tapeworms) and trematodes (flukes); and industrial toxins such as lead, mercury and cadmium all lead to unhealthy and potentially deadly drinking water. In North America, there isn't much worry about parasitic worms, but if you are travelling abroad, it is a big concern. As well, chemical contaminants are few and far between in North America, especially in recreational wilderness areas. However, the complex parasitic protozoa are especially prevalent in most all water found in nature. Many, including *Giardia lamblia*, *Cryptosporidium parvum*, and *Entamoeba histolytica*, transform from free-living forms into dormant, but highly infectious, cysts when expelled in the host's feces.

Cysts are usually round or oval shaped and have tough shells, allowing them to survive long periods in water sources while they await ingestion by a suitable host in which they can reactivate into free-living organisms and reproduce.

Compared to viruses, and even most bacteria, parasitic protozoa will wreak havoc on your digestive system.

Giardia lamblia is one of the most well known risks to drinking backcountry water. It is a protozoan parasite that enters the water via the feces of mammals and then attaches itself in the small intestines. It can cause diarrhea, vomiting, bloating, and weight loss.

Cryptosporidium parvum is another protozoa species that populates fresh water in North America via the same method as *Giardia*. The result of ingesting water infected with *C. parvum* is tremendous diarrhea.

If you drink unfiltered water from a stream or river, realize that you didn't pack nearly enough toilet paper for what will lay ahead for you.

Concentrations of cysts vary depending on the water source and the exact location of feces in the water. On average, concentrations in water in wilderness areas of North America are usually below one cyst per liter of water. However, water in a beaver pond, for example, can average well over 100 *Giardia* cysts per liter.

Raw sewage or run-off from land populated by cattle infected with *Cryptosporidium* can exceed 5,000 cysts per liter.

In 1996, spring run-off in Cranbrook, British Columbia, flushed infected cattle feces into the town's reservoir, which caused a massive outbreak of cryptosporidiosis that involved several thousand people. In 1993, in the largest ever North American outbreak, 400,000 people became infected with *Cryptosporidium* in Milwaukee, Wis., from contaminated drinking water.

Adding to the potential for severe outbreaks is the strong resistance of *Giardia* cysts and total immunity of *Cryptosporidium* cysts to the chlorine used to treat urban drinking water.

A CASE AGAINST BOTTLED WATER

A possible solution is to carry enough bottled/filtered water with you that will last the duration of your trip, but in a survival situation, you can't possibly know how long that will be. It could take days for you to hike out of the hills or weeks for the choppers to find you. What then? Your bottle water will have run out and you will slowly die of thirst. A person's water consumption needs depend on altitude, temperature, and the physical activity a person is engaged in. At rest, an average man needs about three liters of water a day (women need 2.2). A liter of water weighs roughly 2.2 pounds, so carrying enough water to last three days will add nearly 20 pounds of weight to a man's pack.

Plus, bottled water has an environmental impact. The production of the plastic and the fact that it takes 10,000 years to decompose is a detriment to its use.

The best solution is to have a way to filter the water on the go. Carrying a water treatment system is much lighter than bringing all the

[OPPOSITE] South America's Atacama Desert has had no significant rainfall from 1570 to 1971, when it rained 1.73 inches over several days. All the water filtration systems in the world won't help you in that environment. However, in North America, where some parts can receive over 100 inches a year, making some of it potable is paramount.

"IF YOU DRINK UNFILTERED WATER FROM A STREAM OR RIVER, REALIZE THAT YOU DIDN'T PACK NEARLY ENOUGH TOILET PAPER FOR WHAT WILL LAY AHEAD FOR YOU."



[ABOVE] The problem is that, in drought conditions or especially arid environments where rainfall is less prevalent and finding a water source less probable, you are more likely to come across a small spring like this. Below the scum and bugs is potentially drinkable water, provided you purify it.

water you need. And with a treatment system, you need only carry enough water to get you from one source to the next.

There are dozens of filters and chemical treatment options on the market for a wide range of situations and needs: pump filters, gravity filters, filter straws, chemical drops, and UV light. We narrowed it for you to seven systems that would work best in a survival situation. We discounted chemical drops and tablets. While they effectively remove the dangers in water, they leave behind the impurities (dirt, pebbles, and plant life) and tablets and drops can only treat a finite amount of water, whatever is in the bottle or however many tablets came in the pack. When the tablets or drops run out, you're out of fresh water. Use of UV light systems, while futuristic and effective, relies on batteries and light bulbs, which both go bad and/or break.

SELECTING A SYSTEM

Selecting a water treatment system is even more overwhelming than selecting proper footwear to hike in, which is a much talked about topic. There are numerous factors to consider, from the basic categories of size, weight, and treatment time, to more complicated categories such as filter medium, longevity of the system, and what types of organisms each system is effective at eliminating.

Filters: They do well at eliminating bacteria and *Cryptosporidium*, but not viruses. They strain out particulate matter (plants, bugs, and dirt) and usually improve the taste of the water.

Chemical Treatments: They eliminate bacteria and viruses, but they eliminate *Cryp-*

tosporidium usually only after extended time in the chemical solution. Chemical treatments do not strain out particulate matter (plants, bugs, and dirt), and they usually have a negative affect on the taste of water. Plus, you're adding chemicals to your body.

UV Purifiers: Interestingly enough, UV light treatments do not actually kill pathogens. Instead, they disrupt the DNA of the organisms so that they cannot reproduce. The downside is that if you've treated the water and inadvertently allow it to sit in sunlight for a long period of time, the organisms can rejuvenate. The EPA approves of the UV process as a purifier (used in commercial applications), but does not actually approve specific UV devices that hikers can carry.

Though weight is a big concern among hikers and backpackers, each of our systems are generally light enough that their weight is much less important than their function. In a survival situation, you'd sooner give up the butane camp stove over a water filter system. However, take into consideration the packaging. Some filter systems don't come with storage bags, which makes packing them rather inconvenient.

A much more important aspect to survival needs is the time before drinking, the time each method needs to be effective. Some are immediate, like the filter bottles and pumps, while tablets and chemical drops can take up to four hours. Usually time is of the essence. Unless you're base camping in a remote area for days at a time, longer methods are acceptable, but if you're on the run or need to extricate yourself from a hostile situation, you will need to get water as you go and cannot afford to waste time sitting around waiting for your water to be ready.

There are other considerations when selecting a filtration system. How much water do you need to treat? Some can only accommodate a liter at a time (such as the canisters), while others have a never-ending supply. Collecting water for a group of people one bottle at a time can be tedious and inefficient, while gravity-fed filters have the ability to collect and treat a lot of water quickly, which is great for groups.

If you are going with a filter-style pump/gravity-fed system, consider not necessarily the filter medium (the material that actually filters out the impurities) but instead the advertised micro size. This is a measurement of the pore size in the filter media. Essentially, the smaller the pore size, the more pathogens the filter can strain out. A simple rule of thumb is that the smallest bacteria is 0.2 microns, so a filter should be around that size or smaller to be the most effective. **ASG**



Sawyer Mini

A small but versatile filter, the Sawyer Mini can be used either as a straw-style filter or can be attached to the top of a bottle. It is the lightest filter available, simple to use, and a great value. With a 0.1 micron pore size, the Mini is effective against protozoa, bacteria, and *Cryptosporidium*. It does not treat for viruses. Since it has no moving parts and no batteries, it is less likely to break or not work when you are out in the wilderness and need it most. We find this filter to be very reliable. You can use the Mini to drink directly from a source and it works best with the straw attached directly to the filter. It can also be screwed onto a water bottle, and the filter comes with one 16 oz. soft bottle that stows away in small places. Since you can drink directly through this filter like you would a straw, the treatment time is instantaneous and relatively effortless.

With a total weight of 2.4 ounces for filter, bottle, and straw, it is inconsequential to include in your pack. The manufacturer states that the Mini can treat 100,000 gallons before needing to be replaced, which means it could last for many, many years (if you drank two gallons of water every day through this filter, it would last for 136 years).

Of course, depending on how cluttered the water is, you will have to eventually back flush the filter with the included syringe, but you can use the filter for a decent number of times before this is required. As well, do not let the unit freeze, as this will damage the hollow fiber membrane inside the filter.

A. If used properly, this little filter will deliver you refreshing and clean water for many years.

B. The include syringe is needed to occasionally back flush the filter of the built up particulate matter that was filtered out. Doing this the first time will give you an idea of how well this filter works.





A. The small filter for this system can only treat approximately 1,500 liters of water, which is roughly 400 gallons, before it needs replacing.

B. Both bags are clearly marked, and the dirty bag is the only one that opens from the top via a zip-lock closure.

C. If anything was going to break, it would be the plastic screw cap that attaches to the clean water bottle.



Platypus GravityWorks

The Platypus GravityWorks filter system combines filtering with storage, as it is available in either a two- or four-liter capacities, which makes for an ample supply of water for a base camp situation. It is quick, easy to use, and is best for creating clean water for larger groups of people. The hollow fiber filter is effective against protozoa and bacteria but not viruses; therefore, it is best for North American travel and not international use. The absence of moving parts or batteries means that it is less likely to break, but the plastic storage bags can be punctured, rendering the system useless. As with all filters, don't allow this one to freeze; doing so will damage the fibers in the filter.

Despite the hoses and bags packed in the box, this system is very easy to use. Simply fill the bag labeled "dirty" with dirty water, zip the top, attach the hoses with the arrow on the filter pointing towards the clean bag, and set the dirty bag somewhere above the clean bag, such as secured to a tree or a rock (a strap is included). The dirty bag has a zip-lock top and the clean bag does not, so mistaking the two is difficult; however, the hoses can get mixed up when packed away.

This filter system was designed to treat large quantities of water for groups or for cooking. The four-liter system can store and carry up to eight liters of water at a time (four clean and four dirty), and the whole system will treat an entire gallon in less than five minutes.

With the included storage bag, the system weighs just shy of 12 ounces, and the maintenance on this system is very low; back flush before each use by elevating the clean bag above the dirty bag until the bubbles stop. The filter is good for 1,500 liters, and the water flavor remains unchanged.



Sawyer Two-Liter Gravity Flow System

The Sawyer Two-Liter Gravity Flow Systems Filter removes particles, protozoa, and bacteria down to 0.10 micron in size, including *giardia*, *salmonella*, *cryptosporidium* but not viruses, which makes it unsuitable for international travel. It is remarkably easy to use. Simply fill the included gray reservoir with unfiltered water, attach the filter and filter hose and let gravity fill the included blue reservoir with clean water. The dirty water reservoir is labeled “do not drink” in several languages, and has a convenient plastic handle for when dipped into a water source. However, if you are at home, the system also comes with a faucet adapter.

The overall weight of the whole system is just 12 ounces, but because it lacks a bag to store it all in, wrestling the bags back into their original configuration can be difficult.

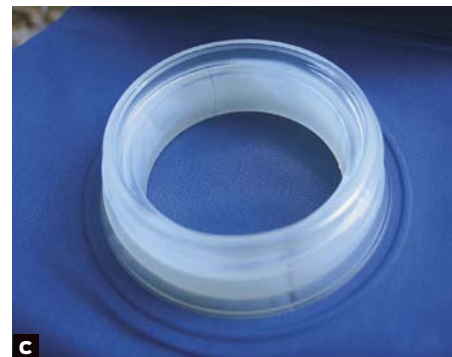
The manufacturer boasts a “million gallon guarantee,” meaning that you will never have to replace the filter, ever. Additionally, the dirty bag, when used to collect water, has a large mouth to collect water with.

The nylon bags, opposed to the plastic bags used with the other filters, are stronger and less likely to puncture. This means that the system will last longer and is more suited for whatever rugged situation it might be in.

A. The filter is guaranteed to last for one million gallons before needing replacement.

B. The faucet adapter is handy but not much use in the backcountry.

C. The large mouths of the bags allow for quick filling and emptying.



Sawyer Squeeze

Differing from traditional pump filters, the Sawyer Squeeze consists of a small filter that can screw onto small-mouthed bottles or to one of three differently sized collapsible bags that come included with the filter. It is a lightweight, inexpensive, and a compact treatment method that works well for personal use but would be hard pressed to accommodate a group of people.

Since there are no moving parts to this filter, it is unlikely to break and it is effective against protozoa, bacteria, and particulate, but does not treat for viruses. It uses a 0.1 micron, hollow-fiber filter to strain out pathogens, and this pore size is the smallest of this group of filters, which means that it can eliminate very small organisms.

The total weight of the system is a mere 5.1 ounces, and that includes all three bottles (while the filter alone weighs 2.7 ounces). Since you can drink directly through this filter, it is a quick option for fast water on the go (though it is inefficient to use this as a source of cooking water).

To use this filter, simply screw it onto one of the included bags or a small-mouthed water bottle and drink directly from it (or squeeze the water into another vessel). The manufacturer claims that this system can treat up to a million gallons, which means you'll never have to buy another system again. However, the collapsible bags that it comes with will not last a lifetime (but they are inexpensive).

The only downsides that can be found is that it might be difficult to collect water into the small mouths of the bags, especially if the water isn't free flowing or deep but instead, a small puddle. Also, the filter holds water inside of it after use and will leak out after a while (in your pack if you put it away). As well, it doesn't come with a carrying bag.

A. The filter that comes with this system will, literally, last you a lifetime if you take care of it properly.

B. The small mouth on the water bags might make it difficult to collect from shallow sources, but they are the same size as typical water bottles found in the store.





Aqua Vessel Filtration Bottles

Because it is a water bottle with a filter contained inside, it makes a good option for hikers and long-distance walkers who want to bring a bottle along with them and still treat it, though it is a heavy option (especially the insulated version) for multi-day backpacking trips.

The activated coconut shell carbon filter strains out 99.99 percent of *Giardia* and bacteria, as well as chemicals and heavy metals. It also filters out *Cryptosporidium*, which is the cyst that most chemical treatments such as iodine do not eliminate. It seems very reliable, except for the fact that it is difficult to drink from the straw with the filter attached. The water flows very slowly, which might be frustrating for a thirsty hiker. However, an option is to skip the bottle and drink directly from the source with the included straws.

At more than 14 ounces, the Aqua Vessel is not the most weight efficient method for the volume of water it filters (0.75 liters at a time.) If you would carry a water bottle with you anyway, then the filter itself doesn't add much weight and the bottle does add convenience. The good side is that there is no wait time before drinking; you can drink immediately after filling it. However, the flow through the straw is slow, so no gulping of water will happen with this one, and it would be difficult to dispense water into a cook pot.

This bottle is good for 378 fills before the filter needs to be replaced, which is only 283.5 liters of water (74.8 gallons).



A. The downside to this filter system is that it is slightly more difficult to drink the water through the retractable straw.

B. The filter will need to be replaced after drinking approximately 75 gallons of water through it.

C. The non-insulated version of the Aqua Vessel is lighter and slightly smaller.

**A****B****C**

MSR Miniworks EX

The MSR Miniworks EX is a robust and sturdy filtration system. The ceramic filter with a carbon core is effective against bacteria, protozoa, and cysts, as well as chemicals, herbicides, and pesticides. This ceramic filter is good for up to 2,000 liters of water, which is 528 gallons.

At 16 ounces, it is the heaviest filter in the group and one that will have a lot to live up to in order to earn a place in a weight-conscious backpacker's gear. This filter is easy and simple to use. Simply drop the hose into any water source and begin pumping. At the end of the hose is a coil of wire that will keep it off of the bottom of the stream or lakebed, while an adjustable float helps suspend the end of the hose at whatever desired depth. The handle is chunky and strong, which is good for pumping, but it requires a lot of force to pump to push the water through. It is quick to take apart for maintenance and comes with an attached red plastic disc for scraping the filter when it clogs (as well as measuring it for replacement).

Ceramic filters last by far the longest of any other filter media. They may require frequent cleaning if they become clogged, but the filter itself will last longer than any of the other filter. And it even improves the taste of the water since it filters out chemicals as well as pathogens (even chlorine and iodine flavors).

Since this filter is the hardest to physically pump, it took around 30 seconds longer (two minutes) to pump a full liter than any of the other filters, but still does not require a long wait like the chemical treatments.

A. The coil of wire and piece of foam keeps the end of the hose suspended in the desired level of water, not floating on the top and not scraping along the bottom but in the middle, where the cleanest water resides.

B. The filter system's case is strong and well made. It will last for many years.

C. The pump's filter is removable and easy to clean with the included red scraper. The threaded end can attach to some types of bottles.



LifeStraw Go Filter

The LifeStraw effectively strains out bacteria and protozoa, including *Cryptosporidium*, through its hollow fiber membrane, but it does not treat for viruses. This straw-style filter is incredibly easy to operate but suffers from the limited amount of water that can be filtered at a time, best for a single-user rather than a group.

The main downside to this filter (similar to the LifeStraw straw that is very popular among backpackers) is that you cannot treat water with it and then transfer the water to another vessel, so you can't use it to treat water for cooking or for groups. You can only drink through the filter. If you are backpacking and need to bring water with you between sources, you will need to carry a bottle of dirty water with you and drink through the Straw whenever you are thirsty. Keep in mind that doing this contaminates your vessel, and you will need to drink through the filter out of it every time until it has been properly sterilized.

It can filter up to 264 gallons of water before the 0.2 micron filter needs to be replaced, and the bottle can hold 670 mL of dirty water.

A. The hollow fiber membrane (think stretched Fiberglas) removes 99.9999 percent of waterborne bacteria and 99.9 percent of waterborne protozoan parasites.

B. The retractable straw has a plastic cover that will nearly immediately get lost, but the unit comes with a carabiner.



X

CALIBER SURVIVAL SHOTGUN

ADAPT & SURVIVE ONE GUN 12 CALIBERS






The Ultimate Survival Gun



Innovated By:



Tim Ralston

CHIAPPA

firearms

www.chiappafirearms.com

It is surprising that so many uses can come from such a simple chemical compound. Hydrogen peroxide is very similar to water, with the addition of one extra oxygen atom.



The Cure-All

14 SURPRISING USES FOR HYDROGEN PEROXIDE

Story and Photography by **Ryan Lee Price**

There's probably a bottle of it in your medicine cabinet or under the kitchen sink right now, and you might not even realize it is there. Hydrogen peroxide is just one of those things that people seem to always keep around the house because, not only had their grandparents done so, but because it has countless uses, some of which you might not even realize. However, if you haven't a bottle or two of this helpful substance in your cache of emergency supplies, you might want to stock up on it because it can easily replace some of your more expensive supplies.

Though hydrogen peroxide can be found in nature—honey and rainwater both contain hydrogen peroxide—it isn't a substance you can easily (or safely) create on your own. The equipment to create it much more expensive than the substance itself, so you're not going to be able to replicate it in a long-term survival situation if you don't already have it.

The point is to make sure you don't run out of it when you need it most.

Emily Thacker, in *The Magic of Hydrogen Peroxide*, writes: "Our grandmothers knew so many helpful uses for hydrogen peroxide. They wiped down counter tops and sterilized cutting tools, cleansed cuts and scrapes, and disinfected household items. As word traveled of its amazing versatility, everyone from health-care professionals to beauty consultants began finding new and fantastic uses for this wonderful household product."

French scientist Louis Jacques Thernard first identified and isolated hydrogen peroxide (H₂O₂) in 1818 by accident. He was involved in creating barium peroxide by burning barium salts and noticed that a byproduct of his experiment was hydrogen peroxide. It took many years to perfect the formula, and not until 1894 was 100 percent hydrogen peroxide isolated by Richard Wolffenstein.

There are many different concentrations of hydrogen peroxide, but

the pure 100 percent H₂O₂ is a highly volatile substance still used as a rocket fuel. The X-15, for example, a ship used by the U.S. Air Force in the 1960s to experiment with high altitudes, one that still holds the record for the highest speed ever reached by a manned aircraft (4,520 mph) used pure hydrogen peroxide to power the fuel pump.

But the most commonly available household form is the three percent concentration that you see in the brown bottles at your local store. There is also a 35 percent "food grade" hydrogen peroxide, which is used to sanitize equipment that is used to prepare food, while other grades include chemical, industrial, and highly explosive military grades that are not generally available and are unsafe for common use.

Note of caution: Though there have been many successful experiments involving the injection of hydrogen peroxide into patients with diseases such as HIV or cancer, you should never drink it, ever. It is a



The fuel pump of this experimental aircraft from the 1960s is powered by hydrogen peroxide.

PHOTO BY U.S. AIR FORCE

poison and will readily kill healthy cells as easily as it might destroy bacteria and diseased cells.

Wound Care

Three percent hydrogen peroxide can be used for cleaning wounds and removing dead tissue. It can be used to stop a small wound from bleeding.

Infections

Soak any infections or cuts in three percent for five to 10 minutes several times a day. Even gangrene has been healed by soaking in hydrogen peroxide. Put half a bottle of hydrogen peroxide in your bath to help rid your skin of boils, fungus or other skin infections.

Mouthwash

Take one capful (the little white cap that comes with the bottle) and hold in your mouth for 10 minutes daily, then spit it out. If you have a toothache and cannot get to a dentist right away, put a capful of three percent hydrogen peroxide into your mouth and hold it for 10 minutes several times a day.

Foot Fungus

To cure a foot fungus, simply spray a 50/50 mixture of hydrogen peroxide and water on them (especially the toes) every night and let dry.

Mites and Ticks

People infected by mites and ticks should spray hydrogen peroxide on their skin to get rid of mites and ticks.

Toothpaste and Toothbrush

Add enough three percent hydrogen peroxide to baking soda to make a toothpaste. Also, simply dip your brush in three percent hydrogen peroxide and brush. Soak your toothbrush in hydrogen peroxide to keep them free of germs.

Tooth Whitening

A positive side effect of using hydrogen peroxide as a mouthwash is that the oxidation properties of it work as a tooth whitener. NOTE: Do not swallow it. When finished rinsing

with hydrogen peroxide, be sure to rinse out your mouth with water.

Sanitize Surfaces

Clean your counters and table tops with hydrogen peroxide to kill germs and leave a fresh smell. Simply put a little on a dishrag or spray it directly on the counters. Use hydrogen peroxide to clean glass and mirrors with no smearing. Also use a bottle of vinegar and a bottle of hydrogen peroxide together (keep the liquids separate). When they mix on the surface, the chemical action of the two make a very powerful sanitizer. Vinegar and hydrogen peroxide kills virtually all Salmonella, Shigella, and E. coli bacteria on heavily contaminated surfaces.

In the Dishwasher

Add 2 ounces of three percent hydrogen peroxide to your dishwashing detergent to remove bacteria left over after the wash cycle.

Mold

Mold can cause severe illness, so clean with hydrogen peroxide, especially areas that have water damage.

Washing/Laundry

Add a cup of hydrogen peroxide instead of bleach to a load of whites in your laundry to whiten them.

Stain Remover

Although it might bleach and/or discolor some fabrics, three percent hydrogen peroxide is a great stain remover. Use cold water and soap to remove the peroxide-treated blood.

Vegetable Soak

Add $\frac{1}{4}$ cup of three percent hydrogen peroxide to a full sink of cold water to kill bacteria and remove pesticides. Soak light-skinned vegetables (like lettuce and tomatoes) for about 20 minutes, while thicker-skinned vegetables (like cucumbers and carrots) for about 30 minutes.

Meat Sanitizing

You can also use hydrogen peroxide to rinse off your meat before cooking. **ASB**



Catalase is an enzyme found in all living things that are exposed to oxygen, such as this potato. It reacts with the hydrogen peroxide in a similar manner as it would to a cut, by bubbling. This bubbling action is what removes bacteria from the wound.

Mixed with baking soda, hydrogen peroxide makes a cheap and effective toothpaste.



Grades of Hydrogen Peroxide

3.5% Pharmaceutical Grade:

This is the grade sold at your local drugstore or supermarket. This product is not recommended for internal use. It contains an assortment of chemicals that shouldn't be ingested.

6% Beautician Grade: This is used in beauty shops to color hair.

30% Reagent Grade: This is used for various scientific experimentation and also contains stabilizers.

D) 30% to 32% Electronic Grade: This is used to clean electronic parts and is not for personal use.

35% Food Grade: This is used in the production of foods like cheese, eggs, and whey-containing products. It is also sprayed on the foil lining of aseptic packages containing fruit juices and milk products.

90%+: This is used as an oxygen source for rocket fuel.



KEEPING A MAN ON THE FENCE

PROTECTING YOUR PERIMETER

Story by **Mykel Hawke**



BARB WIRE IMAGE COURTESY OF WWW.CLIPARTBEST.COM

WHEN IT COMES TO PROTECTING YOUR PERIMETER, THE FIRST QUESTION TO ASK YOURSELF IS, “WHAT IS YOUR END STATE?” THAT IS, HOW FAR ARE YOU WILLING TO GO? THIS IS OFTEN DRIVEN BY WHAT IS YOUR START POINT: WHAT IS THE SITUATION? IN SPECIAL FORCES, WE ALWAYS SAY, “INTEL DRIVES OPS,” WHICH MEANS, WE CANNOT PLAN AN OPERATION IN A VOID OR VACUUM OF INFORMATION. WE NEED TO KNOW WHAT OUR CIRCUMSTANCES ARE, AS THAT INTELLIGENCE WILL DETERMINE WHICH PLANS WE MAKE AND WHAT OUR RESPONSE AND COURSE OF ACTION (COA) WILL BE.

There is no such thing as hard and fast rules for anything, but there are principles that apply to everything. When in your home, under normal day-to-day circumstances, there is no one specifically seeking to do harm to you and yours and, in general, there is no one out there looking to rob your possessions. This is a base line assumption for planning.

That said, perimeter protection planning could be broken down into three main categories: zero to low threat, moderate to potentially dangerous threat, and definitely dangerous or downright imminent threat. In short, low, medium, and high threat conditions. Suffice it to say, as a combat Green Beret and family man, if anyone gets past my perimeter, the assumption is that they intend to do harm, and my intent is to not let them and to do so with extreme prejudice.

We're also going to cover this topic from two primary considerations: static and mobile perimeters. Most people do not live in a bunker or fortress so we'll address the static perimeter from the perspective of the normal home front. And since most folks do not go into a full-blown survival mode on a day-to-day basis, we will discuss the mobile perimeters from the perspective of people going camping. In both the static and mobile perimeter situations, there are en extremis considerations,

forcing an intentional combat-level fortification of a home as well as a planned evacuation under duress.

The responsibility for the protection of your perimeter in most survival-based situations will primarily be you, in that you will notify the authorities of an intruder or threat or you will be the first (and possibly only) responder. Either of these requires an alarm system, which notifies you of potential dangers and threats to allow you to respond. The key for any alarm system is time. The more time you have, the better your response can be. Therefore, the further out your perimeter alarms are, the better your response can be. For most folks, this begins at the edge of their yard or property.

STATIC PERIMETER

Low Threat

Some of the best ways to have perimeter protection are passive measures that alert you that someone or

something is out and about in your general vicinity. These serve two purposes: They let you know that something is going on so you can evaluate and determine a course of action such as to investigate, initiate authorities or activate defenses. They let the potential problem know that someone has been warned. They will know this means potentially having to engage the proprietor or law enforcement. Hopefully, this is enough to discourage their advance and encourage them to withdraw. A conflict avoided is a victory all around. Mission Accomplished.

Some good examples of passive perimeter protection are the lights that come on or alarms that sound off when triggered. Usually, these are battery operated, solar charged and sometimes synchronized to professional alarm companies.

Some good active measures for static perimeter protection on low threat environments are walls or fences as well as dogs. These options

provide an actual physical deterrent to someone intending to penetrate your perimeter. As a physical barrier, they are considered as an active measure, whereas noise and light, are considered passive measures, as they are only psychological deterrents.

Medium Threat

If the threat is considered to be more dangerous—perhaps some storms have hit and there are some looters about—then one might need a bit more aggressive posture.

Some passive measures may be to put signs out saying “guard dog” or “beware of owner.” Bright floodlights can be placed as a psychological deterrent as well. People don’t like to be seen if they’re up to no good.

Some active measures may be to use electricity on the fences or put up barbed or concertina wire on the fence. In Africa, home owners place the bottoms of broken bottles and glass on the flat tops of walls.

Cameras are considered passive if they are only props and active if they are actually operational, and can track intruders. If they can track intruders, it is for you to decide if you want the camera motions to be detectable or not. If the potential intruder can see the camera looking at them and moving with them, they may decide to leave. If they see the camera looking somewhere else, they may think they can avoid it. A good option is the observation balls that do not let the intruder see what you are looking at, but a light lets them know it is active. Again, avoidance of a confrontation is always your victory.

High Threat

In this situation, it is determined that someone is out to do you harm, or it is known that some people are out doing harm in general and you want to protect you and yours. In these cases, the assumption is that they will break in, they will override low- and medium-threat perimeter defenses and as such, your perimeter protection now becomes a first line of defense from an attack, and the old



[ABOVE] One string can be run around your entire perimeter as a trigger for one alarm. Multiple strings can be placed at ankle, waist and head level for max warning potential and all can be tied to one dangle alarm for minimum energy consumption and supply usage. **[RIGHT]** Electronic devices are excellent tools to be used as warning devices, provided battery resources are plentiful. **[OPPOSITE, TOP]** A perimeter of debris made like a defensive wall obstacle and early warning system. **[OPPOSITE, BOTTOM]** One good idea is to convert a standard home fence to look more like an obstacle by adding barbed wire.



adage, the best defense is a good offense comes into merit.

Your perimeter must be menacing and clearly conveying demonstrable danger potential damage to anyone attempting to penetrate it. The downside of this is that it may invite the more aggressive wrongdoers. The upside is, most folks would steer clear and if someone attempts despite the obvious danger, it is a clear indicator they are either unstable or earnest in their intent to do harm. In this, they then give a full green light for the defender to initiate extreme response to deter and prevent attack.

There are no real passive measures in a high-threat situation, only active measures will protect a perimeter for an active aggressor. Some measures that can be used but are not espoused here, may include booby trapping, making physical obstructions that can either not be overcome or not done so without extreme difficulty. But remember, these work both ways and can be a danger to an emergency egress as well.

In all cases, authorities should be notified immediately and whenever things are in a state of deterioration, one of the first courses of action



should always be to attempt to contact authorities. If communications are down or sporadic, this task can be assigned to one of the junior members of the family. Rehearsal is key.

MOBILE PERIMETER

Low Threat

The basics for mobile are the same as of static, the difference is in the tools available. Likewise, the passive and active principles are the same except the active is more than likely going to be you and yours unless you have communications

with authorities. But most likely, you will be out of radio or cellular phone range and even if not, the chances of them getting to you and finding you are so slim and so slow, the active measures are simply going to fall on your shoulders. This is all the more reason to have better response time by having more distance between you and the perimeter alarms.

For those whom spent some time and dime on their planning, there are some great, affordable tools for mobile perimeter alarms. There are sonar alarms you can find in some electronic stores. They don't cost

OWN IT™

BLACKWASH SERIES

Self-reliance is self-evident. Rebellion has a cause. Being prepared is a way of life. Being tested is to be expected. Fear is to be embraced. One opinion counts. Independence goes without saying. And there are no excuses.

What are YOU carrying?



kershaw®

KERSHAWKNIVES.COM



much, they're lightweight and easy to operate. Place it so the sonar beam goes across the potential approach path. Someone or something crosses the path, breaks the sonar beam, the alarm goes off. It scares the bejeezus out of man or beast and hopefully they run away. Same as for trip wires and lights. But even if the threat doesn't run away, it buys you a moment while they are surprised and it tells you where there are and when they are there.

The further out you place these and the more of them you place, the better your chances of either getting away, or getting ready. Be mindful, placing alarms too far away may mean loss of alarms by forgetting where they are or potentially abandoning them under duress and egress.

If you don't have alarms, you can make some. In the field, I will often lay leaves down in the fall or twigs and branches all around me where any threat might approach. In this way, especially when I am out camping alone, I know, neither man nor beast of prey can get near me without waking me.

In addition to these measures, I rehearse my Immediate Action Drills, or IADs. I have my super bright flashlight tied on my wrist, my super loud whistle around my neck and my walking stick, machete, knife, pistol, or rifle in my fighting hand ready to go. I rehearse my emergency wake up response at least three times before I go to sleep. I study my likely avenues of approach and my potential escape routes. I have my gear pack, and or my rucksack so I can escape with as much as possible if I need to flee.

Medium Threat

Next to the low-threat measures, these are the same but now you want to be more aggressive about your perimeter and may want to make actual obstructions that either totally prevent approach to your perimeter, or make it so difficult, they cannot get through without alarming you and compromising themselves to being exposed to a counter attack from your



[ABOVE] Setting up lethal, non-lethal and signal devices is necessary to prepare for immediate reaction before bedding down for the night. **[BELOW]** Figure-four traps can be tripped easily if someone is within your perimeter.



defensive position. Always have an escape route planned and always have a counter attack plan ready.

High Threat

In these situations, you are in the exact same situation as a military unit. You must first and foremost select the best terrain available to you.

- You must have visibility to survey around you.
- You must have concealment to hide your position.

- You need cover to give you physical protection from attack and the elements.
- You need to have an escape route, or two.

You should surround your position with not only alarms and obstacles, but booby traps, as well. Logs that fall, holes covered up, anything to stop attackers. The key is that these should be concealed.

You do not want to advertise where you are and do not want to let them

Four Perimeter Principles

More response time means better response type

This is based on another assumption of training. Training comes in many forms, but primarily it is as simple as planning a response and practicing it. Whether you are alone, with family or others, your plan must incorporate everyone, regardless of their active or passive roles. Even passive people can become complications if their actions are not coordinated and controlled.

Plan your response and respond to your plan

How much and how often you rehearse your plan and actions is a preference of preparedness. But the key to any alarm, is to have a response. The key to having a response is to have a plan. The key to any plan is to practice implementa-

tion. More rehearsals mean better execution. As you practice, you find yourself going through "what if" scenarios and in this way, you find gaps in your plan, holes in your defense and can take steps to compensate for those weaknesses. Rehearsals make you aware of flaws so that if you can remedy them, you can mentally war game through potential responses while you're not under stress and duress. In this way, half the battle is already won before it's begun. And always reverse your point of view in training so you can see yourself as a target.

More rehearsal, less reversal

A protected perimeter is the objective. The end state, your safety: the safety of yourself and all that you are choosing to defend. Therefore, your level of commitment and resolve must be resolved before the moment of

danger, any hesitation when it matters most can cost the most.

Stronger perimeter, safer sanctuary

All of these principles apply to the static and mobile perimeter protection planning. The biggest difference will be time and dime. One can spend a lot on home defense, and often, that is a prudent investment. But one must evaluate how defensible a home is, and if a mobile plan might actually be a safer course of action to execute. This is particularly true for some homes.

Sometimes remoteness or even being in a large city can be advantageous and sometimes, not so much. Either way, one can usually spend more money on and give more thought to perimeter planning for home. And with a little time and thought on mobile perimeters, one can greatly enhance the overall safety.

see you work and thereby avoid your preparations. You want them to get trapped and hurt. This serves numerous purposes.

- It makes them yell in pain and gives you an alarm and chance to fight or flee.
- It may draw some of their party away to render aid to the injured.
- It may deter others from pursuing or at least delay them or slow them down.

But note: Always take into consideration the fact that if you injure yourself and/or others, you may be held accountable.

Dogs are a great mobile perimeter alarm, and if trained not to bark on command, they can be good in all

three levels of threat. Dogs may trigger alarms if permitted to roam.

In all of these, the best plan is always to have a plan and plan to survive with honor. Decide on what you value most and how far you are willing to go to protect that. Determine what courses of action you are willing to live with and stand by, should you ever be called to account for yourself and your deeds. If you do your best to do your best by others, you will always be able to hold your head high, when all said and done. **ASB**

Bio: Mykel Hawke is a retired U.S. Army Special Forces officer, best known for his role in the Discovery Channel series *Man, Woman, Wild*, where he co-starred with his wife, Ruth England, a British television presenter and actress.

\$6.99/100FT

Genuine 550 lb. Type III, 1/8" diameter nylon Paracord with a seven strand core. 46 colors available.



PC101 White



PC102 Black



PC103 Olive Drab



PC104 Coyote Brown



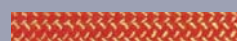
PC106 Charcoal



PC108 Burgundy



PC116 Colonial Blue



PC118 Neon Orange



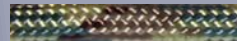
PC123 Solar Orange



PC127 Desert Camo



PC128 Foliage Camo



PC140 G.I. Camo



PC139 Galaxy

Side Release Buckles

Durable plastic side release buckles used to complete paracord bracelets. Available in 3/8" and 5/8" sizes.



PC993 3/8" (PKG OF 10) Assorted 6.95
PC995 5/8" (PKG OF 10) Assorted 6.95

JANTZ
1-800-351-8900
knifemaking.com

Harvest the Rain

INSTALLING FISKARS' SALSA RAIN BARREL AND DIVERTER PRO

Story and Photography by **Ryan Lee Price**

In 1860, California had such a severe drought that it killed thousands of head of cattle, dried up countless acres of crops, and brought down the wealthiest generation of Californians at the time, the Spanish Rancheros. The original California dons went broke, lost their power and land because of the lack of a little rain.

Fast forward 150 years, and Californians are in a very similar predicament. With just about 5 inches of rain, the state has only seen a fraction of its normal total rainfall of 23.65 inches. Other parts of the country have seen their fair share of drought conditions over the years, but when it does rain, most of it is lost. The roof of your house is a huge rain collector, like a giant tarp. It runs into the gutter and funnels down the spouts; the normal course of all that water just goes back down the drain, either swept out to the ocean (in coastal big cities) or it soaks back into the ground (in rural areas). Saving some of that water for when it is needed in the dry months has become paramount.

As Finland's oldest company (founded in 1649), Fiskars is a global supplier of products for the home, garden, and outdoors, employing 4,100 people in 20 countries. The 58-gallon Salsa rain barrel is made in the U.S. of UV-treated polyethylene designed to withstand the

elements and provide years of maintenance-free service. It is 40 inches high and roughly 25 inches round, but slightly flattened at the rear to fit up against the wall. It is connected to the DiverterPro rainwater capturing system via the connector hose, which only allows in the rainwater and filters out the debris. On the inside of the DiverterPro is a catch basin with a plastic mesh top. Rainwater enters the unit from the top and goes through this mesh, which captures any leaves or other debris that may have washed off the roof or down the gutters. Water fills up the catch basin and starts to pour into the rain barrel. When the barrel is full, water will overflow the plastic mesh and continue down the downspout.

Caution: the water collected in the barrel system is only for the lawn and garden plants. People and/or animals should not drink from the barrel, nor should the water be used for cooking or washing without being properly treated. Asphalt roofing shingles contain polycyclic aromatic hydrocarbon, which is a known carcinogen, and the rainwater that flows from it may also contain toxic elements, such as lead and arsenic.

Installation only takes about an hour and requires the very basic of tools: hack saw, drill, screwdriver, strap wrench, tape measure, level, cutting shears, and pen. **ASB**

Source

Fiskars.com
MSRP: \$140.00



1 In addition to the Salsa Rain Barrel, the kit includes the DiverterPro, a length of connector hose, the spigot, and adaptors for smaller-sized downspouts. **2** Place the barrel near a downspout that is out of the way of the normal functions of the house, like a side yard, where it won't be disturbed. We are using the concrete blocks to raise up the barrel so larger buckets can be used to drain out the collected water. **3** On a solid base of gravel, position the blocks so that they are completely level, front to back, and that they are wide enough to support the entire weight of a barrel full of 58 gallons of water (roughly 465 pounds). The barrel needs to be close enough to the house and between 9 and 36 inches away from the downspout. **4** Twist in and tighten with a strap wrench (or rubber-clad pliers) the spigot. It has a rubber gasket, so it doesn't need to be torqued down too tightly. The spigot itself turns as well, and it is threaded to fit a standard size hose. **5** Depending on which side your barrel will sit in relation to the downspout, drill a 1-inch hole in the side of the barrel closest to the downspout. There is a raised notch on the barrel that shows exactly where you should drill. **6** The hose connector adaptor simply hand tightens with this nut on the inside of the barrel. It has a rubber gasket to prevent leaks, and doesn't need to be too tight.





7



9



8



10

7_ Place the level on the top of the rain barrel (without the lid) so it extends over the downspout. While maintaining it level, draw a line across the spout on the bottom of the level. Note: we ended up removing the entire downspout to make the cuts easier, but this is only an option. It can be cut while still attached to the hose. **8_** For a 2 x 3-inch downspout, measure up from the original line 3.5 inches and draw a line. From that second line, measure down 10.25 inches and draw another line. For a 3 x 4-inch downspout, measure up from the original line 2.25 inches and draw a line. From that second line, measure down 7.75 inches and draw another line. **9_** With a hacksaw, cut the second and third lines to remove the 10.25-inch section of 2 x 3-inch section of the downspout (or the 7.75-inch section if your downspout is 3 x 4 inches). **10_** Since our downspouts are 2 x 3 inches, we fitted the adapters onto the top and bottom of the DiverterPro unit. If your downspouts are larger, you won't need the adapters. The flush side goes against the rear of the unit.



11_ While on the ground, we screwed the unit to the lower part of the downspout, and reattached the upper part of the downspout to the gutter.

12_ We then slipped the DivterPro onto the upper part of the downspout and screwed it in.

13_ The connector hose was too long, so we cut it to fit with wire cutters.

14_ The hose fits on the drain port on the side of the DivterPro (there is one on each side, so leave the one you are not using capped). The longer your hose is, the more weight it will have to support. We suggest using a hose clamp to keep it secured.

15_ The hose needs to be as level as possible. This keeps the barrel from overflowing. As soon as it is full, water will no longer feed through the hose. The plastic housing cap is clear so you can periodically check on the catch basin for debris.



ASC



Parabolic Flame

SOLO SCIENTIFIC'S TINDER HOT BOX SOLAR FIRE STARTER

Story and Photography by **Ryan Lee Price**

One of the biggest stresses facing someone in a survival situation is their ability (or not) to start a fire, as there is a great amount of importance placed on this one act. It not only provides light and heat, but it can cook your food, ward off intruders (animal or otherwise) and provide a mental comfort in a potentially scary situation.

There are dozens of ways to start a fire, from the ubiquitous but difficult rubbing of two sticks together, to simply whipping out your handy lighter and torching whatever flammable material is closest. There are also pros and cons to each system—you can run out of flint, fuel, gas, and batteries—so it is a good idea to have a backup plan, a redundant solution that uses nothing but the sun.

Machined from solid aircraft-spec aluminum and weighing in at a scant four ounces, the Tinder Hot Box Solar Fire Starter is only 2.6 inches in diameter so it can fit in your pocket or pack, but can provide nearly instant fire, thanks to its highly polished parabolic mirror that directs 100 percent of the sun's light to a very small focal point at the top of the tinder holder arm. The difference between a true parabolic mirror and a fresnel lens or a magnifying glass is that neither of these latter



[TOP] The three pieces of aluminum that make up the kit are very well made and rugged. The tinder holder arm fits snugly onto the base of the parabolic mirror and then snaps onto its holder in the case bottom when not in use. **[ABOVE]** Resembling a hockey puck, the Hot Box is small, light, and well made. The knurled sides help with grip during inclement weather. It is aluminum, which means it will never rust.



The rubber o-ring provides a water- and air-tight seal to keep the tinder dry. That small hole just below the lip of the case lets out the displaced air as the top closes tightly.

two are hampered by the spherical aberration of their design. The rays of light bend at different lengths and don't meet at the exact same point. A parabolic mirror does, which means a more light, more heat, and a quicker fire (even using less light). No light? No problem. Use a xenon high-intensity headlight as the source. Need a claim more fantastic than that? It'll work on any planet that orbits a nearby star, but be careful on Uranus; its atmosphere is highly flammable.

The kit comes with a sealed bag of dried tinder to be used if none can be found, but since the Hot Box's case is protected with a rubber o-ring, it is waterproof and can be used to store additional tinder. Resembling a hockey puck when closed, the edges are knurled to make gripping it in wet or cold weather easy. The o-ring makes for a tight fit.

The tinder holder arm, a small aluminum stand that fits onto the base of the mirror lines up perfectly with the focal point of the mirror. The arm is removable and stores in a slot of the case, and if fault could be found, it would be here. Lose that small arm, and the Hot Box is reduced in function. If that arm was somehow permanently connected to the parabolic mirror, it may never get lost.

Light, compact and excellently designed, the Hot Box is a must for any outing. As well, leave off the tinder holder arm, and it doubles as a great signal mirror. **ASB**

Source

CampingSurvival.com
MSRP: \$39.95



[ABOVE] The kit comes with a sealed bag of dried leaves that fit in the case when none is available.



[LEFT] Properly set up and angled toward the afternoon sun, it took no more than a second for the leaves to smolder.



[BELOW] If you have a steady hand, it can be held. Also, without the tinder holder arm, it makes a wonderful signal mirror.



Handcuffs were designed a thousand years ago, but only improved to their recent design 100 years ago. They're effective at restraining a person in an impractical position, but it isn't impossible to break free if you understand how they work and what can be used as a substitute key.

Shackled

HOW TO ESCAPE FROM A PAIR OF HANDCUFFS Story and Photography by Ryan Lee Price

Maybe we've all been there. She was cute and flirty. It was late, and her piercing steel eyes were captivating. You went back to her place. Drinks, music, the lights were low. It was her idea at first, and perhaps you thought it would be fun, something different at least. But now they're a little too tight, and she left the room, muttering something about getting your ATM PIN and where she kept the flat iron. Amorous delights are quickly being replaced by morbid fear, especially after sounds of her sifting through the knife drawer drift out from the kitchen. You've got to escape, but how?

Metal handcuffs have been in use for a thousand years, as history has been full of unsavory individuals that

needed restraint. Most were a one-size-fits-all affair until 1862 when W.V. Adams patented the first adjustable ratchet design, which was improved over the course of the next 30 years. However, in 1912, George Carney invented the first swing handcuffs, a design that allowed an officer to quickly apply and secure the cuffs with just one hand. It is a design that is still in use today. There are three kinds of handcuffs intended to be used on the wrists, and they are classified by how they connect together: the chain, the hinge (shown here), and the bar.

Since handcuffs are only supposed to be used temporarily, the lock is not too complicated. When the cuff is placed around the wrist, the swing arm slips into the lock housing and clicks shut. What holds the swing arm in

place is a set of opposing teeth (on the arm itself and in the lock housing). Called the paw, it is set in place by a tension spring, which is why it makes the clicking sound when closing. When you turn the key, it pulls the paw away from the swing arm so it won't bind against it.

Most handcuffs, like these Smith & Wesson M-300, have a double locking mechanism that makes it slightly more difficult to escape from (if it is engaged), but not impossible. The double lock is when a small lever is slid closed in a hole on the opposite side of the handcuffs. In this manner, the handcuffs must be unlocked by turning the key one way and then double unlocked by turning it the opposite way. The double lock is engaged with the post on the top of the key.

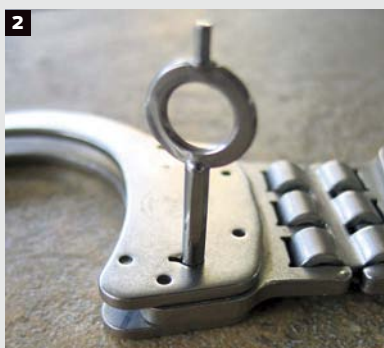
There are three main ways to open a set of handcuffs, with the original key or a reasonable facsimile (like an escape key), an improvised picking device, or with a metal shim.

Having the original key makes escape inevitable, but the likelihood of you getting the key is rather slim, so it is always a good idea to carry one with you. There are many companies that make escape keys that are either very small to be sewn into the lining of your waistband or jacket cuffs or are incorporated innocuously into various common items like a pen, a coin, shoelace aglet, or a wedding band. The concept is to have these items hidden in a location that will be near to where the cuffs will likely be, behind your back. Remember, when inserting a “key,” handcuffs release when the key is turned toward the hinge/chain of the cuffs when it is single locked, but you must turn it the opposite direction first, if it is double locked, before turning it back toward the hinge/chain.

Another, slightly more difficult way of releasing the lock is by picking it. This can be done with a bobby pin, safety pin, or a paper clip. The idea is to create a small nodule on the end of the picking device, in our case, a bobby pin, that is approximately 70 degrees. This can then be placed inside the key-hole and used to retract the paw in a similar manner as the key. It takes considerable practice to do this, especially behind your back and a potentially dangerous situation.

A shim can be made of most anything flat and metallic, ours torn from a shard of a soda can. The idea is to force a stiff, but thin, object between the serrated teeth on the swing arm and the serrated teeth on the paw. Once something comes between them, the swing arm can be pulled out, and the arm is free.

If escape is your plan, remember, you only really need to get one arm free, and if you're limber enough, start by slipping your arms underneath your legs so that they're in front of you. Picking or shimming a set of cuffs is a lot easier if you can see what you're doing. But then again, if escape is your plan, pick the locks later; get out now! **ASG**



1. Though a variety of things can be used, aside from having the nearly impossible brute strength to break them (which a normal, sober person can't do), there are only really three methods from circumventing the locks: key, picking, and a shim.

2. A standard handcuff key fits every handcuff, which is

one of the things that makes escaping from them even easier. Of course, if you have the key, you're in luck, but there are several things that can be made into a key if you're lacking one.

3. Under normal use, when the key is turned, it disengages this toothed paw, which slides back and releases the swing arm. The

object of any escape method is to either move this paw or come between it and the teeth on the swing arm.

4. There are many companies that sell escape keys that can be hidden in your clothes or disguised as regular looking objects, from a shoelace aglet to a ballpoint pen. There is even a rubber “support” bracelet that hides a key inside.

5. A bobby pin, safety pin, paper clip, or any small, stout object can be fashioned to fit inside of the key-hole and disengage

the locking paw. But having these items on your person will most likely raise suspicion from your captors and be removed.

6. Creating a shim to come between the paw and the swing arm will force the paw away from the swing arm and allow it to release. It is important to find something strong but thin enough to be forced in the small gap between the swing arm and paw, such as a piece of an aluminum can. However, discrete shims can be purchased for just this reason.

COVERT ESCAPE TOOLS

Unique Titanium Provides Escape Solutions

There are a wide variety of scenarios where knowing how to escape a pair of handcuffs is vital; from kidnapping to home invasion, getting uncuffed without your captors knowing is Step One to ensure your survival. Unique Titanium in Bessemer, Ala., provides not only a large catalog of high-quality and affordable camping gear and fire starters, but also an enormous array of everyday carry items, such as carabiners, bottle openers, paracord and keychains, a lot of them made from titanium. Though the business was founded on custom flashlights, they also provide an assortment of micro escape tools that can be concealed, sometimes in plain sight, and ready if and when the time comes.



1. Undercover Bracelet

For anyone held unlawfully, this non-metallic and unique “gummy” bracelet innocuously hides a handcuff key. Placed exactly where one would need it on the wrist, the key is easily accessed. The key is permanently affixed to one end of the bracelet and also serves as the connector to join the two ends. The bracelet accommodates wrists up to 10 inches, and can be cut down to fit.

2. Handcuff Shim/Saw Blade

This useful and tiny tool is easily concealed and can be quickly put to work as either a small saw to cut through cloth, duct tape, or plastic ties, or as a shim to pry apart the teeth of a single-lock handcuff. Made from hardened 316 stainless steel with a small lanyard hole, it is 2 inches long and 1/8 of an inch thick. It is a direct replacement for the saw/shim in the Titanium Escape Ring.

3. Zipper Pull Handcuff Key

Jackets and sweaters have zippers, and zippers need pulls, which makes this a perfect covert escape tool. Nobody will ever inspect your zipper pull for clandestine tools, so this is the ultimate “hidden-in-plain-sight” item. It can be attached to any zipper, and the key remains completely hidden and since it is attached to a rugged cord, it will not get lost.

4. Bootlace Handcuff Key

Similar in concept to the Zipper Pull Handcuff Key is this covert bootlace handcuff key that is designed to have a near zero likelihood of being detected. Discreetly attached to the tip of your bootlace, this handcuff key is then covered by a black rubber aglet. It installs easily with a pair of small pliers.

5. Titanium Escape Ring

It looks like a typical silver ring, one that has more sentimental value than monetary value, which will keep your captors from stealing it while in their charge. The Titanium Escape Ring is cut from solid barstock and polished to a mirror finish. Tucked into a small divot around the inside is the Handcuff Shim/Saw Blade, which is completely hidden from view when worn. Available in all most common ring sizes. **ast**

Source

Unique Titanium
6185 Pochahontas Road
Bessemer, AL 35022
(205) 213-5280
UniqueTitanium.com





The TAMPON Survival Tool

THE TACTICAL ADVENTURE MEDICAL PREPAREDNESS OUTDOORS NECESSITY

Story and Photography by **Creek Stewart**

For the next few minutes, try to forget everything you know about tampons. I know, it's hard; but pretend that this is the first time you have ever seen or heard of one, and it is a new survival product on the market: the Tactical Adventure Medical Preparedness Outdoors Necessity (T.A.M.P.O.N.).

The tampon is actually regulated in the US by the Food & Drug Administration as a Class II Medical Device. The word "tampon" is a derivative of the French word tapon, which means "a little plug or stopper." Research indi-

cates that tampons were used as early as the 19th century as battle dressings to plug bullet holes. There are even accounts of tampons being used as wound plugs in modern warfare. It's not uncommon for Army medics to carry tampons in their med kits. They are also the perfect product for a bloody nose. What is surprising is that there seem to be mixed accounts of whether the tampon was used as a feminine product before or after its use on the battlefield.

Regardless of intended use, the common tampon has many practical survival uses, and it is up to you to include one in your survival bag.



“THE WATER DRIPPED OUT
NEARLY CRYSTAL CLEAR.”

MEDICAL BANDAGE

Tampons are sterile, come very well packaged in their own waterproof sleeves, and are designed to be ultra-absorbent—making them the perfect first aid bandage. They can be opened and then taped or tied over a wound as an improvised dressing. And, as I’ve already mentioned, they can be used to plug a bullet hole until more sophisticated medical attention can be administered. Accounts of this use date back to World War I. Many items in modern society were first developed as a facet of military research—tampons may very well be one of these products.

CRUDE WATER FILTER

Another excellent tampon survival use is as a crude water filter. While it will not filter out biological, chemical, or heavy metal threats, it can certainly be used to filter out sediments and floating particulates. This would be considered a 1st Phase Filter, which can drastically increase the life and efficacy of your main water filter. You can also use a filter like this before boiling to filter out larger particulates. In this example, I’ve pushed a tampon into the neck of an empty water bottle. I poked a small hole in the cap and then poured in dirty water to filter through the tampon and into the container below. The water dripped out nearly crystal clear.

FIRE TINDER

Nearly everyone knows that cotton makes excellent fire tinder. When the dry cotton fibers of a tampon are pulled apart and hit with a spark or flame, they will burst into a nice steady fire. If you’ve done the right amount of fire prep work, you can easily split 1 tampon into 3 or 4 fire-starting tinder bundles. Add in some chapstick or petroleum jelly as a flame extender, and you’ve got an even better fire-starting tinder.

CRUDE SURVIVAL STRAW FILTER

As a last ditch water filter, you can make an improvised Survival Straw from the plastic housing and cotton from a tampon. As you can see in the photos, just tear off a bit of the cotton and stuff it into the plastic housing. I find it better to leave a little bit sticking out to make the housing pieces wedge tightly together.

Again, this filter will not purify your water by removing biological, chemical, or heavy metal threats, but it will filter out sediments and particulates. This would be a last ditch effort if no methods of water purification were available.

WICK FOR IMPROVISED CANDLE

As you can see in the photo, I used the string on a tampon as a wick in an improvised candle, which I made from rendered animal fat and a fresh water mussel shell I found down by the creek at Willow Haven. After the string soaked up some of the fat, this candle burned solid for 20 minutes while I took the photos and still had plenty of wick left. Pinesap, olive oil, butter and lard would have also worked as a fuel.

CORDAGE

The string attached to a tampon is a cotton twisted cord typically made up of several 4- to 6-inch pieces of twine. Though it's not much, it is usable cordage. This amount of cordage could easily be used to make a Paiute Deadfall Trap. I'm sure there are also numerous other uses for small amounts of quality cordage.

BLOW DART FLETCHING

The blowgun certainly has its place in survival history. From Native Americans to tribes in New Guinea, the blowgun and primitive darts have put food on the table for thousands of years. They are silent and deadly hunting tools, especially for small game. Oftentimes, especially here in the U.S., natural cotton was used as blow dart fletching. Thus, the cotton from a tampon is a perfect candidate to make cotton-fletched blow darts. I used the string on the tampon to lash it into place on this bamboo skewer.



Straw Filter



Wick



Cordage



Blow Tube

BLOW TUBE FOR COAL BURNING CONTAINERS

Yes, I have a tampon in my mouth—again. This time, though, I’m blowing instead of sucking. Wow ... this section is off to a really weird start. In a survival scenario, a simple container can make the difference between life and death. A watertight container can be used to carry water, boil water, and cook meals. Natural, watertight containers aren’t easy to make or find. A very practical and useful improvised container can be made by using hot coals to burn out a cavity in a log or stump. A blow-tube (in this case the plastic tampon applicator) can be used to intensify the hot coals to burn the cavity.

Using the tampon applicator blow-tube, it took me about 30 minutes to coal burn a cavity large enough to hold two cups of water. If necessary, I could then boil and purify this water by adding in several red-hot stones that had been heated in a fire.



Tinder Case

WATERPROOF MATCH AND FIRE TINDER CASE

In wet or damp conditions, keeping fire-starting tools such as matches and tinder dry can be a challenge. The waterproof tampon package/sleeve makes an excellent improvised “dry-sack” for any items that are moisture sensitive. Just fold over the top two to three times and tie it off with the tampon string and you’ve got a great waterproof match case.

SURVIVAL FISHING BOBBER

Fishing with hook and bobber is an incredibly effective method—especially when using live bait such as grubs and worms. A thorn hook, some natural braided line, and a tampon bobber make the perfect combination for a survival fishing rig. Watch out, Blue-Gill!

Make the bobber with the tampon package/sleeve by folding over and tying off the top to create a little bubble that will float your bait. If the package isn’t watertight, just put some of the cotton inside and it will float. Then, simply tie it to your fishing line.

Multi-functional products that can serve double or even triple survival duty are very useful to keep in your bag. For the size, weight, and cost, a tampon has an impressive list of survival functions. If nothing else, this post is another lesson in the importance of looking at everyday products through the eyes of a survivalist. Creativity and innovation are critical.

So, will you be including a tampon or two in your survival kit? **ASG**



Fishing Bobber



TOTALLY 100% PURE SYNTHETIC OIL BLEND

f Like our Facebook page
for daily updates, cool photos
and stories and more!

FOR MORE INFO:
712-303-1029

VISIT US ONLINE

BUY DIRECT ONLINE NOW ON OUR WEBSITE!

REDSGUNLUBE.COM



"THIS STUFF BEATS THE
CLP WE WERE ISSUED IN
AFGHANISTAN IN ABOUT
EVERY WAY!
GOOD LUBRICANT"

- C. JOHNSON, RETIRED U.S. ARMY

CHECK OUT OUR NEW PRODUCTS FOR 2014!

EMERGENCY FOOD WATER & SUPPLIES
STAY ALIVE
SURVIVAL BAGS, INC.

SurvivalBagsInc.com

We carry a full line of trusted
survival products including:

**Eberlestock • Ontario Knife Co • Mossy Oak
LifeStraw • Fox Tactical • CRKT
Camo Unlimited • UST
and many more.**



WARNING - THESE SURVIVAL BAGS ARE NOT FILLED WITH TOYS





Shocking Truth

HOW TO STAY SAFE IN A LIGHTNING STORM

Story by **Larry Schwartz** | Photography Courtesy of National Oceanic and Atmospheric Administration (NOAA)

It was a bright and clear Monday morning when I unlocked the door to the office. We had a huge thunderstorm the night before, and as I walked in something was different, there was a different smell in the air that took me a minute or two to identify. It was ozone! My steps quickened as I walked back to the computer room in the back where most of the employees of our small software firm worked.

When I entered the room, the smell of burnt electronics filled my nostrils and I stood there in shock. The building must have taken a direct hit from a lightning bolt during the night. It had passed completely through our industrial strength surge protector and had shorted out our development minicomputer, as well as half a dozen high-end CRT terminals.

It would be a couple of days to get the new equipment in place, but thankfully nobody was hurt. Fortunately, we had the foresight to keep offsite backups of our development and operating software, otherwise the whole company would have been dead in the water.

That morning was a very sobering one, with us realizing how much power a lightning strike has and how much we each need to know about lightning and how to stay safe when it is nearby.

PHOTOS COURTESY OF NOAA

HOW LIGHTNING FORMS

Lightning is formed in cumulonimbus clouds, those tall fluffy clouds we refer to as thunderheads. The extremely tall nature of this type of cloud, up to 25,000 feet above sea level, allows updrafts of warm moist air to move up until the cold at higher altitudes causes the moist air to cool and start to fall in the form of a downdraft.

At the top of this circular route, the moist air turns to ice and eventually hail. As more and more ice and hail particles form, they bounce off of each other giving more and more of them negative charges. When enough of these negative charges gather at the bottom of the cloud, a lightning bolt can form which then travels to the ground by its attraction to the positive charges in the earth.

WHAT LIGHTNING CAN DO

As mentioned above, lightning is the most powerful force in nature and it can do serious damage to anything that it strikes. Electrical appliances that are in the grounding path of a lightning strike will be short-circuited or burned out. Trees, lumber, or any-

thing with significant moisture in it, will immediately boil and explode.

People struck by lightning may or may not be killed or injured, depending on how well they were grounded at the time of the strike. Lightning also does not have to strike an object directly to damage it. The current may flow along the ground or along wires or pipes from the initial strike and then hit something a short distance away.

HOW TO GET ADVANCED WARNING

There is only one way to be safe in a lightning storm, and that is to not be out in the open when it strikes, but inside of some form of shelter that will channel any electrical strike down into the ground. Lightning can strike from as far away as 10 miles or more, even when no storm clouds are visible in the sky. There are warning signs that we can use to get to safety before a strike occurs.

Watch for clouds that are growing very quickly or when a cloud gets much darker at its base or if it is getting very tall. The darkness comes from the increased level of

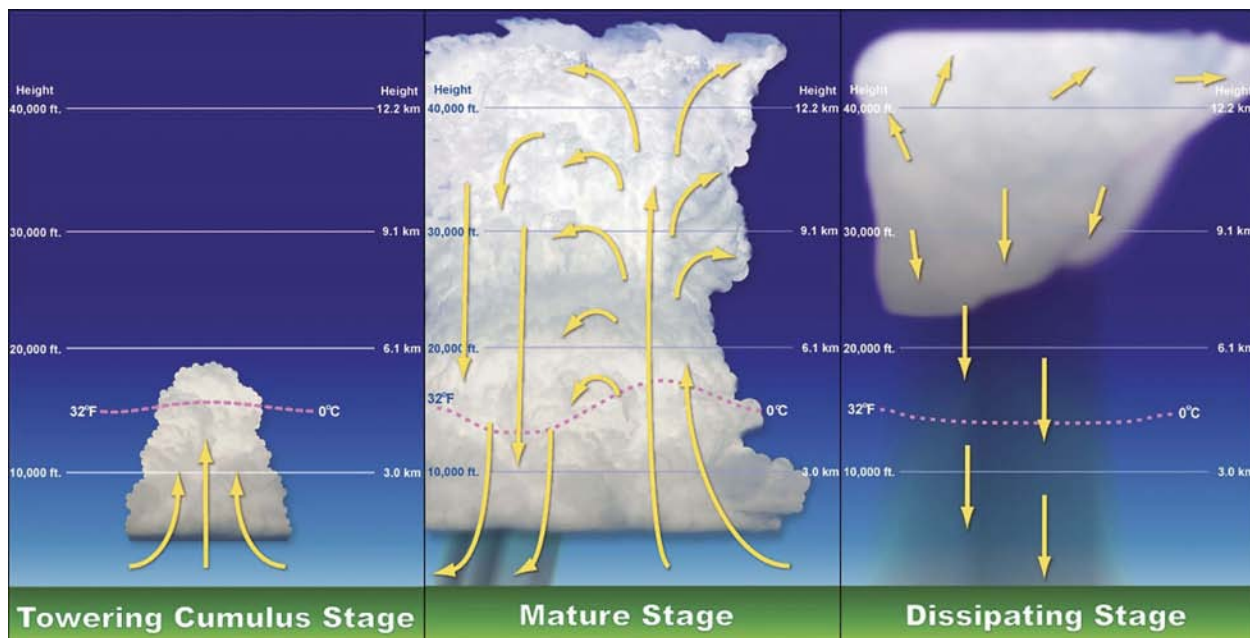
moisture in the cloud and the height indicates the presence of the updraft and downdraft cycle that forms the ice crystals.

Large, fat drops of rain are another indication that a thunderstorm is brewing. It also indicates that the drops are getting bigger through the up and down cycle.

Audible thunder is another indicator of lightning, sometimes still in the clouds, but often striking some distance away. The 30-30 rule will help you here. If the time between the moment you see the flash of the lightning strike and you hear the thunder is less than 30 seconds, then the lightning is too close for you not to be seeking shelter. The second 30 is the number of minutes, at a minimum, you should wait before you decide to leave your shelter.

Static or popping sounds on an AM radio are also good indicators of too much static electricity in the air which could become lightning.

When a strike is imminent, this static may also manifest itself in the form of a tingling sensation, the hair on your arms or head standing up, or a soft buzzing or hissing sound.



The combination of updrafts and downdrafts creates the ice particles that bounce off of each other, creating the negative charges that eventually become bolts of lightning.



[LEFT] Reaching out to find the greatest positive charge, fingers of a lightning bolt follow the path from cloud to earth in a matter of milliseconds.

[BELOW] Lightning has incredible destructive force, easily boiling the sap in trees causing them to explode the moment they are struck.



HOW TO PROTECT YOURSELF FROM A LIGHTNING STRIKE

The best form of shelter is a substantial building with metal wiring or pipes that connect to an electrical ground and will therefore channel any electrical strike down into the earth. Open structures like picnic pavilions, bus shelters or tents that do not have metal connected to ground will not provide adequate protection; you need the mass and the grounding of metal in the structure for the immense power in the lightning bolt to flow to ground in the earth and not into you or any electrical gear nearby.

Regardless of whether you are taking shelter inside of a building or a vehicle, you should avoid touching anything metal which could conduct the lightning into you rather than

letting it flow to the electrical ground. Non-wired devices such as cell phones or cordless razors or can openers that are not wired to the ground are safe to use.

Avoid water pipes, faucets, and anything else that is part of the wired conductive circuit in the house to avoid attracting the charge if the lightning strikes the structure. Avoid areas where excessive moisture may be present, such as a large concrete patio, sidewalks, or sump pumps. Avoid walls where wiring may be in place, as lightning may jump from one path, such as electrical wiring, to another path in the house, such as plumbing to reach the ground.

The next best shelter, especially if you are not near an appropriate building, is an automobile that has a metal roof. Although the wheels will



DON'T USE THE LIGHTNING CROUCH

The National Weather Service used to recommend using the lightning crouch if you are stuck out in the open when lightning strikes. It made that recommendation because it felt the crouch minimized your likelihood of being the point that lightning would strike. However, in 2008, it changed that advice because they found that it didn't matter. It decided to base its recommendation on providing a significant level of safety, which the crouch did not provide. Your best course of action is to get out of the dangerous situation by doing the following:

- > Plan ahead. (That includes knowing where you'll go for safety)
- > Listen to the forecast.
- > Cancel or postpone activities if thunderstorms are in the forecast.
- > Monitor weather conditions.
- > Take action early so you have time to get to a safe place.
- > Get inside a substantial building or hard-topped metal vehicle before threatening weather arrives.
- > If you hear thunder, get to the safe place immediately.

prevent the charge from flowing directly into the earth the charge will normally jump out of the vehicle and into the earth anyway. Open vehicles like convertibles or vehicles with soft shells tops like golf carts or ATVs will not provide adequate protection. Roll the windows up on the vehicle and do not touch any metal parts. Wireless device like cell phones, that

are not connected to the vehicle are safe to use, but not if they are plugged into the vehicle via a charger or USB connector.

Whether in a structure or in a car, you should turn off all electrical devices to reduce the risk of their being damaged should a lightning strike occur. If you are in a vehicle and lightning strikes, you should check to make sure no damage has been done, such as a leak in the fuel system, which could cause a fire if another strike happens nearby or if an electrical spark is created by something shorting out.

WHAT IF SOMEONE GETS HIT

If someone gets hit by a lightning strike, and they are not killed, they will likely be in need of immediate CPR. The current standard for giving CPR is to first make sure you and the person are safe; next, give 30 chest compressions followed by two rescue breaths, and then repeat until they recover. First aid for burns may also be needed if the person has second or third degree burns, either from the strike or from electrical devices. And, of course, always treat any injured person for shock.

GIVE A LITTLE RESPECT

So, as you can see, we need to give lightning the respect that it deserves. Keep an eye out for the signs that a storm or strike may be coming. Get to a sheltered location as soon as possible rather than doing the lightning crouch or looking for a ditch to lay in. And learn to do CPR so you can help someone who does get struck. **ASG**

FOR MORE INFORMATION

- To learn more about lightning and how it can affect you, see these references:
- The NOAA website; www.nssl.noaa.gov/education/svrwx101/lightning/
- The National Weather Service website; www.srh.noaa.gov/jetstream/lightning/lightning.htm
- "Questions and Answers about Lightning"; www.pssurvival.com/ps/Weather/Answers_About_Lightning_2004.pdf
- "All About Lightning"; by Martin Uman, Dover Press

LIGHTNING MYTHS AND FACTS

MYTH: Lightning never strikes the same place twice.

FACT: Lightning often strikes the same place repeatedly, especially if it's a tall, pointy, isolated object. The Empire State Building is hit nearly 100 times a year.

MYTH: If it's not raining or there aren't clouds overhead, you're safe from lightning.

FACT: Lightning often strikes more than three miles from the center of the thunderstorm, far outside the rain or thunderstorm cloud. "Bolts from the blue" can strike 10-15 miles from the thunderstorm.

MYTH: Rubber tires on a car protect you from lightning by insulating you from the ground.

FACT: Most cars are safe from lightning, but it is the metal roof and metal sides that protect you, not the rubber tires. Remember, convertibles, motorcycles, bicycles, open-shelled outdoor recreational vehicles and cars with Fiberglas shells offer no protection from lightning. When lightning strikes a vehicle, it goes through the metal frame into the ground. Don't lean on doors during a thunderstorm.

MYTH: A lightning victim is electrified. If you touch them, you'll be electrocuted.

FACT: The human body does not store electricity. It is perfectly safe to touch a lightning victim to give them first aid. This is the most chilling of lightning myths.

MYTH: If outside in a thunderstorm, you should seek shelter under a tree to stay dry.

FACT: Being underneath a tree is the second leading cause of lightning casualties. Better to get wet than fried.

MYTH: If you are in a house, you are 100 percent safe from lightning.

FACT: A house is a safe place to be during a thunderstorm as long as you avoid anything that conducts electricity. This

means staying off corded phones, electrical appliances, wires, TV cables, computers, plumbing, metal doors and windows. Windows are hazardous for two reasons: wind generated during a thunderstorm can blow objects into the window, breaking it and causing glass to shatter and second, in older homes, in rare instances, lightning can come in cracks in the sides of windows.

MYTH: If thunderstorms threaten while you are outside playing a game, it is okay to finish it before seeking shelter.

FACT: Many lightning casualties occur because people do not seek shelter soon enough. No game is worth death or life-long injuries. Seek proper shelter immediately if you hear thunder. Adults are responsible for the safety of children.

MYTH: Structures with metal, or metal on the body (jewelry, cell phones, MP3 players, watches), attract lightning.

FACT: Height, pointy shape, and isolation are the dominant factors controlling where a lightning bolt will strike. The presence of metal makes absolutely no difference on where lightning strikes. Mountains are made of stone but get struck by lightning many times a year. When lightning threatens, take proper protective action immediately by seeking a safe shelter and don't waste time removing metal. While metal does not attract lightning, it does conduct it, so stay away from metal fences, railing, bleachers, etc.

MYTH: If trapped outside and lightning is about to strike, I should lie flat on the ground.

FACT: Lying flat increases your chance of being affected by potentially deadly ground current. If you are caught outside in a thunderstorm, you keep moving toward a safe shelter.

Gear Guide

RADIOS

Emergency Radios

A Comforting Connection To Others During Trying Times

Story by Michael D'Angona

WHEN PLANNING FOR SURVIVAL SITUATIONS, unexpected emergencies or natural disasters, the basics are usually crossed off the list first. Food, water, shelter, and fire-making devices are easy to find and are quickly packed away in a 72-hour bag until needed. One item, however, which many people often overlook when stocking a bug-out bag or emergency kit is a portable, multi-powered radio.

These possibly life-saving devices are specifically designed in function and durability for outdoor survival. Although some radio units may still retain an A/C power cord, most run on auxiliary power sources, such as solar energy, over-the-counter batteries, and hand-created power in the form of a crank or lever that charges the unit.

In addition to critical information you may gain over the airwaves, many of these emergency radios come equipped with extra gadgets to help you get through difficult times. Flashlights, emergency sirens, compasses, thermometers and even phone charging outlets accent some of the diverse models available on the market today.

Always remember that aside from the technological advances of the radios, one feature that can't be overlooked is your instant peace of mind that comes with hearing another human's voice when you are alone, isolated and desperate. That connection may be all it takes to light the spark within you to continue on and eventually get yourself to the safety and security of others.



Hybrid Power Radio

The Secur Hybrid radio is the perfect addition to your bug-out vehicle or auxiliary bug-out location. This emergency radio exhibits multi-functionality without taking up much needed space for other supplies. It receives both AM and FM signals, necessary to receive ever-changing instructions and information during nearly any crises. This unit runs on both human power and solar power, so batteries are never needed. It runs up to an amazing 7 hours on a full charge and only takes one minute of hand cranking to achieve a full 20 minutes of run time. Its backup solar panel constantly recharges the radio to allow hands-free operation. The Secur Hybrid is so versatile, you also have the option of charging through a USB port or even an A/C cigarette lighter if you have the luck to find one when "out in the field." **MSRP: \$40.00**

Maverick Industries, Inc.

94 Mayfield Avenue
Edison, NJ 08837
(855) 452-8388
SecurProduct.com



The Best Emergency Radio

It takes a lot of confidence to call your radio "The Best," yet this unit backs up that boast with top rankings in playback time, clearest reception and longest running time on a full charge. This model features a large ergonomic hand crank that requires minimal effort to charge to full capacity. Once charged, utilize its many valuable options, including an AM/FM digital tuner, a crisp and clear NOAA weather band to keep you alert to changing conditions, and an integrated LED flashlight. If bad weather does arrive, no need to worry. The casing is fully water resistant and a powerful USB charging port can bring your cell phones back to life in very little time. Don't be left out in a dire situation with an inferior, cheaply constructed emergency radio, The Best Radio comes with a no-charge lifetime guarantee backing up the company's assurance of quality. On a bright and sunny day, an integrated solar panel offers a secondary power source.

MSRP: \$99.95

Hammacher Schlemmer

9180 LeSaint Drive
Fairfield, OH 45014
(800) 321-1484
Hammacher.com

Wind 'n Go

This compact unit has everything you need for signaling and communication when out in the wild. With just two to three minutes of winding, this emergency radio will give you nearly 45 minutes of radio reception, including both AM and FM signals and most important, the NOAA weather band. Your survival may depend upon avoiding changing weather conditions; stay one step ahead with this rugged piece of emergency equipment. Its numerous features include an LED flashlight, cell phone charger, high decibel siren, and flashing red emergency light; all crank powered so you can survive and thrive when the grid goes down. An included USB adapter and optional 120V/12V charger are also compatible power sources. **MSRP: \$59.99**

Not if But When Survival Store

22252 Stewart Road
Milan, IN 47031
(317) 767-4281
NotIfButWhenSurvivalStore.com





Classic CB Radio

Don't underestimate the usefulness of a CB Radio. Although not as popular as it once was during the '70s and '80s, this staple found in nearly every 18-wheel truck could be your direct contact to others when the world around you turns horribly bad. This classic CB by Midland delivers full 4-watts of output power, ensuring you the maximum communication range. The unit features 40 channels and has both Xtra-Talk Mic Gain and RF Gain Control that automatically adjusts transmission and reception clarity. No more static-filled conversations—and when lives may be on the line, you can't afford to miss one single word. This is a CB of today, filled with modern technological features, including a squelch control, which reduces background sounds, a PA function to broadcast through an external speaker, a noise blanket, noise limiter, an adjustable dimmer and useful signal meter. **MSRP: \$99.99**

Midland Radio Corporation

5900 Parretta Drive
Kansas City, MO 64120
(816) 241-8500
MidlandUSA.com

Base Camp Radio

The name says it all. The Base Camp Radio is the ideal portable communication center for your campsite or anywhere you need to stay connected to incoming important information. It features a 22-channel GMRS two-way radio, complete with AM/FM and NOAA weather accessibility, and that's just the beginning. This fantastic unit acts as an alarm clock with a bright LCD backlit display, a three LED flashlight, an all-hazard alert receiver and is completely water resistant to keep everything working under harsh conditions. Use the hand crank or four AA batteries to keep this radio operating at its fullest potential and when it's near other Midland radios, this unit can continuously charge them, too. A USB port, external handset/microphone jacks, AC/DC adapters, microphone and rechargeable battery come complete with this multi-purpose survival communications center. **MSRP: \$89.99**

Midland Radio Corporation

5900 Parretta Drive
Kansas City, MO 64120
(816) 241-8500
MidlandUSA.com



Weather Alert Radio

The Midland Weather Alert Radio contains all the traditional emergency items you need when disaster strikes, as well as many unique and innovative features. Multiple power sources, including hand crank, solar, and battery power give life to this outdoor essential. Pick up the NOAA weather band signal to stay alert of all changing weather in your area. When daylight disappears or the power grid goes down, use the extra bright LED flashlight to find your way through the blackness of night. This radio is ideal for emergency situations, with its included SOS flashlight beacon and ultrasonic dog whistle to allow search crews to find you quickly when time is not on your side. The unit comes complete with a long-life battery and USB cell phone or tablet charger. **MSRP: \$69.99**

Midland Radio Corporation

5900 Parretta Drive
Kansas City, MO 64120
(816) 241-8500
MidlandUSA.com



FRX1 Hand Turbine Weather Radio

The FRX1 packs all your necessary survival needs in one easy-to-use compact unit. Utilizing a dynamo motor, the FRX1 allows you a constant supply of power created by the built-in hand crank feature. When and if the world goes dark, you no longer have to rely on batteries or A/C power to keep this weather radio operating when you need it most. Stay in tune with important AM/FM and NOAA broadcasts while under emergency situations. Getting up-to-the-minute information is crucial for your personal survival or getting the injured to those that can help. It also features a unique glow-in-the-dark indicator that enables you to secure it quickly when scrambling for a safer location. An internal long-life rechargeable Ni-MH battery, an LED flashlight and an included set of headphones round out this unit's exceptional mix of must-have features. **MSRP: \$29.99**

Eton Corporation Headquarters
1015 Corporation Way
Palo Alto, CA 94303
(800) 872-3867
EtonCorp.com

Dynamo Radio

Simple, compact, and perfect for everyday or survival use, the Kaito Dynamo Radio fits comfortably in your hand while providing you with all the news and information you need when under emergency conditions. No electricity? No problem, just turn the crank and you have instant power from the internal dynamo. AM/FM and weather band broadcasts will help guide you to needed food, water, medical supplies, or where to meet up with other survivors of your life-changing situation. The unit also features a bright flashlight, which is indispensable during dangerous nighttime hours. It uses two AA batteries as an additional power source, if needed. Weighing in at only 8.6 ounces, it won't weigh down your pack or make it difficult to carry by hand. **MSRP: \$19.95**

Kaito Electronics Inc
5185 Cliffwood Drive
Montclair, CA 91763
(866) KAITO76
KaitoUSA.com



Mini Super Global Short-wave Radio

When traveling the world, you need a radio that is compact, yet able to pick up stations across the globe. Luckily for you, the Eton Mini AM/FM Shortwave Radio is just such an instrument. You won't believe a radio this small does what it does, and does it extremely well! Built with two antennas, one inside the casing and one telescoping exterior on the outside, this unit picks up nearly any signal within its range, displays the station on the high contrast screen and projects the sound out clearly to your ears. The digital tuner locates all the stations within your area quickly and without irritating static. The unit doubles as an alarm clock, with a bright, illuminating display and optional sleep timer and essential lock button to avoid any unnecessary interruptions. The Mini runs on two AAA batteries or uses an optional 6V DC plug-in jack. This unit comes complete with a carrying pouch and USB cable. **MSRP: \$44.99**

Eton Corporation Headquarters
1015 Corporation Way
Palo Alto, CA 94303
(800) 872-3867
EtonCorp.com



NOAA Weather Radio

The Kaito NOAA weather radio has one mission; to give you up-to-the-minute weather reports through your local NOAA broadcasts. Quickly and easily receive custom reports by county throughout the United States and Canada. This tiny radio fits perfectly in any survival pack, your vehicle's glove compartment or even in your vest, jacket or pants pocket. It goes where you do and is easy to use and operate with instant one-touch digital tuning and manual fine-tuning search capabilities. Its extra long telescoping antenna ensures extra sharp reception, even in the most remote of locations. Choose from three colors; red, black or white, and is powered by either three AAA batteries or micro USB adapter. **MSRP: \$29.95**

Kaito Electronics Inc
5185 Cliffwood Drive
Montclair, CA 91763
(866) KAITO76
KaitoUSA.com

Voyager Radio with Dream Features

Looking for a survival radio with all the bells and whistles? If so, then the Kaito emergency radio with dream features should be your first choice. This unit features a staggering six options to power this essential tool, including solar, crank, AA batteries, AC adapter (optional), rechargeable battery pack and USB charging port. This dream machine receives AM, FM, SW1 and SW2 signals, as well as seven standard weather bands and a weather alert feature that activates whenever critical information is relayed. This amazing piece of equipment also doubles as a campside five-LED reading lamp and offers two emergency signals, red and white, used to indicate the severity of your personal survival situation. This radio is perfect to store in your car, cabin, and alternative bug-out location or anywhere you need an invaluable multi-function helping hand. **MSRP: \$69.95**

Kaito Electronics Inc
5185 Cliffwood Drive
Montclair, CA 91763
(866) KAITO76
KaitoUSA.com



Digital Solar Dynamo NOAA Weather Radio

When preparing for a survival situation, your best tools and equipment are ones that serve more than one purpose, and the Secur All-In-One emergency radio fits that description perfectly. Its rainproof exterior and hand crank power generator eliminates your need to stay on the electrical grid, if it still happens to be up and functioning. The unit features AM/FM digital tuning, as well as the NOAA weather alert band to keep you always informed about changing weather patterns. Use the radio to charge your cell phones or other digital devices, while the radio itself can be charged from any USB power source. Its included flashlight contains three high-powered LED lights to help find your way in dark or dusty conditions and its locking hanging carabiner keep this portable multi-use unit close by and ready when needed. This radio is a "must-have" for any survivalist, camper or outdoorsman. **MSRP: \$65.00**

Maverick Industries Inc.
94 Mayfield Avenue
Edison, NJ 08837
(855) 452-8388
SecurProduct.com

DOUBLE DOWN & SAVE BIG



Combine 1 Yr subscription to **American Survival Guide** with 1 Yr subscription to **Bow & Arrow Hunting** and save **67% off** the cover price

TO SUBSCRIBE

- Log on to www.engagedmediamags.com/combo_asgbah
- Call our toll free number 800-764-6278
- Fill out the order form below and mail it with your payment information to Beckett Media LLC, Lockbox # 70253, Philadelphia, PA 19176-9883

☒ **YES!** sign me up for a subscription to **American Survival Guide** and **Bow & Arrow Hunting**

That is a total of 15 issues for a total savings of \$73.90 off the cover price

Method of Payment ☐ Check enclosed ☐ Credit Card ☐ Money Order

Payment through credit card ☐ Visa ☐ MC ☐ AMEX ☐ Discover Name on credit card _____

Credit card number

Expiration da ____ / ____ / ____

Subscriber name First _____ MI _____ Last _____

Address _____

City _____ State _____

Phone _____

Email _____

Signature _____ Date ____ / ____ / ____

Enter Promo Code
A744V3M2

For a full listing of our titles, visit www.engagedmediamags.com today!

Allow 6 to 8 weeks for delivery of first issue. Outside US, add \$35 per year for postage. Pay in US funds only.

AD INDEX

JANUARY 2015



ADVERTISER

PAGE

AirForce Airguns	129
Blade-Tech Industries	29
Chiappa Firearms	95
Elite Survival Systems	17
Jantz Supply	63, 103
Kershaw Knives	101
Liberty Log Cabins	132
LifeStraw	131
Major Surplus & Survival	8-9
Nitro-Pak	3
Original Swat	23
Red's Gun Lube	117
Survival Bags Inc.	117
Tactical Night Vision Company	7
TOPS Knives	2
Tormach LLC	129

The Advertiser Index is provided as a service to *American Survival Guide* readers. *American Survival Guide* is not responsible for omissions or typographical errors on names or page numbers.

Foliage's Fear

(continued from page 41)



[CLOCKWISE FROM TOP LEFT] The 8-inch blade stops about an inch from the edge to protect the edge from rocks and debris when the sickle is in use. • The sickle hock is designed to be able to slice shrubs from the base, while the blunt "bullnose" protects the sharpened edges. Note the notch on the spine. It is a finger guard when the tool is used for digging. • Only after a few hacks into this pine branch, is it evident that this is a well-built tool that will last for years. • Made in America since 1941, the Woodman's Pal was originally designed to help soldiers at war, but later became well adapted to use on the home front.

cut the base of the bush towards you, while the blunt "bullnose" protects the end from dirt and rocks.

The $\frac{1}{8}$ -inch-thick, cold rolled steel blade edge is not flat ground, but actually convex. This double profile blade (with a Rockwell hardness of 47) maximizes the steel's durability and power without chipping. The finish is a highly durable, resin-bonded fluorocarbon coating, which prevents corrosion on the non-ground surfaces.

The 5-inch leather grips of models 284 (shown) and 784 (the 481s and 145s have grips made from ash wood) are thin but comfortable, providing a smooth grip that won't slip in wet environments. The impact of the first couple of swings against a hard object, such as a branch, is felt all the way up the arm as there's not a lot of cushion in the grip. Known as "impact fatigue," that vibration is avoided

when you get used to using the tool properly by merely loosening your grip right before impact.

The Woodman's Pal acts as an extension of your arm because the science of tool design revealed that a swinging tool about the same length of a man's forearm feels the most comfortable and natural. Another part of the design is the axis of balance that runs from the outside tip of the hand guard to the sickle's edge. It provides more momentum and accurate control of the blade during striking. **ASB**

Source

CampingSurvival.com
MSRP: \$75.95

Right Under Your Nose

(continued from page 69)

of hook-and-loop straps as well. Though it is a well-manufactured case with a long list of pros, for the money, we would have expected a basic shoulder strap to be included (they sell a variety of them, however), as well as a couple more tie downs for the interior.

If you're looking for something that will fly under the radar, yet still cart around a fully assembled rifle, the Battle Axe is a great choice. **ASG**



1. Inside the elongated pocket on the case's neck is a patch of loop material waiting for something to hook to it, like a pistol's holster or case. 2. The eight straps on the case's neck are solidly sewn and ready to hold anything (carabiner not included). 3. There are two hard rubber pads on the base and one on the neck that give it not only a decorative medieval look, but function well as anti-slip "bumpers" for protection.

Source

Hazard4.com | MSRP: \$199.99

Enable Your Ideas with a PCNC Mill

Discerning gun and knife enthusiasts know there's only one choice in CNC for affordable precision: the Tormach PCNC 1100. Take aim at your most demanding machining needs - engraving, milling, threading, reaming, and boring. Big or small, Tormach hits the bullseye to deliver for you.



Tormach PCNC 1100 Series 3 starting at **\$8480** (plus shipping)

Shown here with optional stand, LCD monitor, machine arms, and accessories.



Cantilever GoPro camera Picatinny Mount made by Strikemark, manufactured on a PCNC 1100.



Follow knifemaker John Grimsno as he makes his own knives with a PCNC 1100 on his web series, Knifemaking Tuesdays, at www.tormach.com/kmt.

www.tormach.com/asg

serious airgunning starts here

The Ultimate Survival Air Rifle

Escape

Made in Texas, USA

The AirForce Escape line of PCP air rifles are designed for those focused on hunting, prepping, and survival. These rifles provide the highest velocity/muzzle energy to rifle weight ratio of any production airgun.

ESCAPE	
Velocity	800-1300 fps
Weight	5.3 lbs
Length	34.5-39 inches

ESCAPE SS	
Velocity	500-900 fps
Weight	4.3 lbs
Length	27.75-32.25 inches

ESCAPE UL	
Velocity	800-1200 fps
Weight	4.25 lbs
Length	28.5-33 inches

airforceairguns.com

Contact your local dealer or call us today at 877-247-4867.

Air rifles shown with optional accessories

AIRFORCE airguns



PHOTO COURTESY OF UNITED PRESS

The Fallout Shelter

At the beginning of the Cold War, *Good Housekeeping* printed this sage advice: “This is to remember: if and when a single bomb falls within 200 to 500 miles of you, your survival depends on a shelter—and the shelter depends on you.”

The popularity of fallout shelters in the 1960s was a direct response to the political climate of the times, and it was a serious and profitable business as well. Outside of Boston, the developers of Edgebrook, a community in Framingham

Center, were the first to announce the addition of a fallout shelter in its housing development, and a development of homes in Thousand Oaks, Calif., featured fallout shelters in 20 of its homes to entice prospective buyers.

As fear of nuclear annihilation became a strong selling point, a bevy of companies flooded the market to take advantage of it. In 1961, Fox Hole Shelter, Inc., in California, built pools until they discovered a new area they could specialize in “by

turning its original product upside down.”

The Kidde Kokoon, shown here, was an entirely self-contained 4,500-pound steel tank shelter created by the Walter Kidde Nuclear Laboratories, a company founded by Dr. Karl Cohen in 1952. Cohen worked on the Manhattan Project and developed the method used today for enriching uranium, and went on to make many scientific developments in nuclear power.

Featured in the “Modern Living” section of the

May 23, 1955, issue of *Life Magazine*, The Kidde Kokoon is reported to cost \$3,000 at a time when the average yearly income for Americans was \$4,418. The unit featured an electric generator, air fans, canned food and water, five bunks with blankets, storage shelves, and safety suits. It was 14-feet long and 8 feet in diameter.

Everything about survival in the 1960s has a quaint patina of nostalgia on its surface, but are the concepts, threats, and fears still valid 50 years later? **ASB**



**SIMPLE,
EFFECTIVE,
*LIFESAVING***



LifeStraw® PERSONAL WATER FILTER

- Removes 99.9999% waterborne bacteria & 99.9% protozoa
- Filters 264 Gallons (1,000 liters), weighs only 2 oz.
- Over 2 million distributed in aid efforts overseas

From \$19.95

| www.buylifestraw.com

| 1-888-451-6752

FEATURED IN: **TIME** **The New York Times** **Forbes** **CNN** **BACKPACKER**



LIBERTY LOG CABINS

★★★★★ FRIENDS & FAMILY LOG CABINS ★★★★★



We ship nationwide
or join us here:



Serenity Springs -
Southern Missouri
3+ acre tracts - Caretaker on site
Woods - Pond - Springs - Game



FREE AR-15 PACKAGE!

Be one of the first (2) purchasers of a "Friends and Family" cabin package.
Restrictions apply, ask for details.



We are an American Owned
Cedar Log Home manufacturer.
We design and ship nationwide.

For more information visit www.logs.net
or call us at 417.531.5728

